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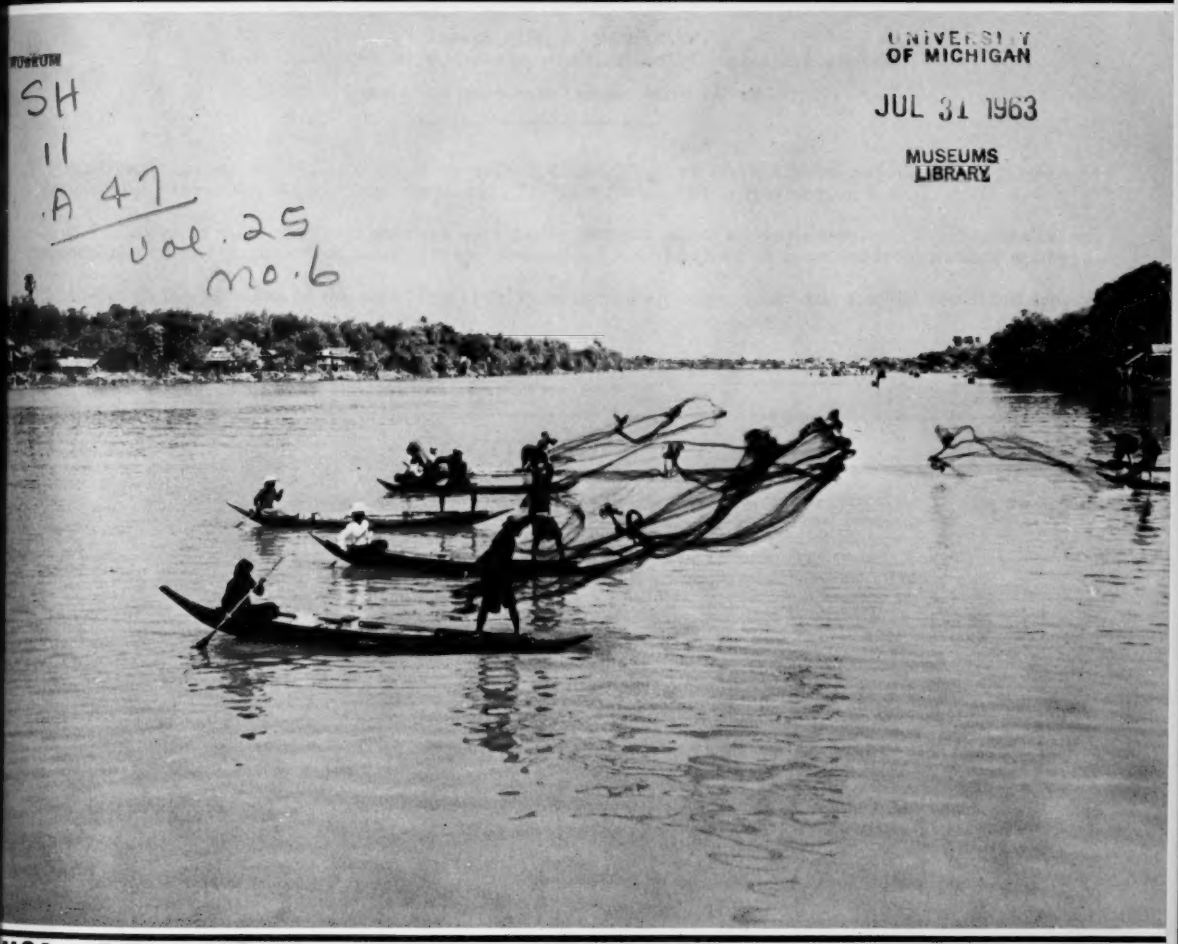

VOL. 25, NO. 6 JUNE 1963

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COMMERCIAL FISHERIES REVIEW

A review of developments and news of the fishery industries prepared in the BUREAU OF COMMERCIAL FISHERIES.

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June 1963 Washington 25, D. C. Vol. 25, No. 6

BOTTOM FISH SURVEY OFF THE OREGON COAST, APRIL-JUNE 1961

By C. R. Hitz and D. L. Alverson*

ABSTRACT

Botton fish surveys were conducted in the spring of 1961 by the U. S. Bureau of Commercial Fisheries with the exploratory fishing vessel John N. Cobb off the Oregon coast in areas not commercially exploited. The surveys were designed to (1) find areas suitable for trawling within and beyond the depth range now fished by commercial trawlers, (2) evaluate the commercial potential of ground fishes inhabiting those areas, and (3) study the depth distribution of fishes and invertebrates found. Trawlable grounds and concentrations of commercially-valuable ground fishes were found.

INTRODUCTION

From April 24 through June 15, 1961, an otter-trawl survey of the bottom fish faunas in selected areas off the Oregon coast was conducted from the Bureau's research vessel John N. Cobb. The survey was part of a long-range program initiated in 1950 to assess bottom fish stocks in the northeastern Pacific Ocean between southern Oregon and northwestern Alaska. Results of previous investigations have been reported by Ellson, Knake, and Dassow (1949); Ellson, Powell, and Hildebrand (1950); Alverson (1951, 1953); Greenwood (1958); Johnson (1959); and Hitz, Johnson, and Pruter (1961).

The survey was carried out in cooperation with the Oregon Fish Commission and the United States Atomic Energy Commission. Primary objectives were to (1) find areas suitable for trawling within and beyond the depth range exploited by commercial trawlers, (2) evaluate the commercial potential of ground fishes inhabiting areas found suitable for trawling, and (3) study depth distribution patterns of fishes and invertebrates found. Other objectives were to obtain samples of fishes and invertebrates for radiological analyses[1/] and to tag live flounders (Pleuronectidae) for migrations and growth studies.

REGION INVESTIGATED

The region investigated includes the Continental Shelf and Continental Slope adjacent to the Oregon coast between the mouth of the Columbia River and the Siuslaw River. Work was conducted in two survey areas within that general region: (1) a portion of the Continental Shelf and Slope off central Oregon between Yaquina Head and the Siuslaw River at depths ranging from 35 to 300 fathoms, and (2) an area offshore in a southwesterly direction from the mouth of the Columbia River at depths ranging from 100 to 450 fathoms (fig. 1).

Major topographic features in the area investigated off central Oregon were Heceta Bank and Stonewall Bank. Heceta Bank is located west of the Siuslaw River, and Stonewall Bank is located approximately west of Newport, Ore. (fig. 1). A major topographical feature of the area surveyed off northern Oregon was the Astoria Canyon which approaches within 14 miles of the Columbia River mouth.

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1/By the Laboratory of Radiation Biology, University of Washington.

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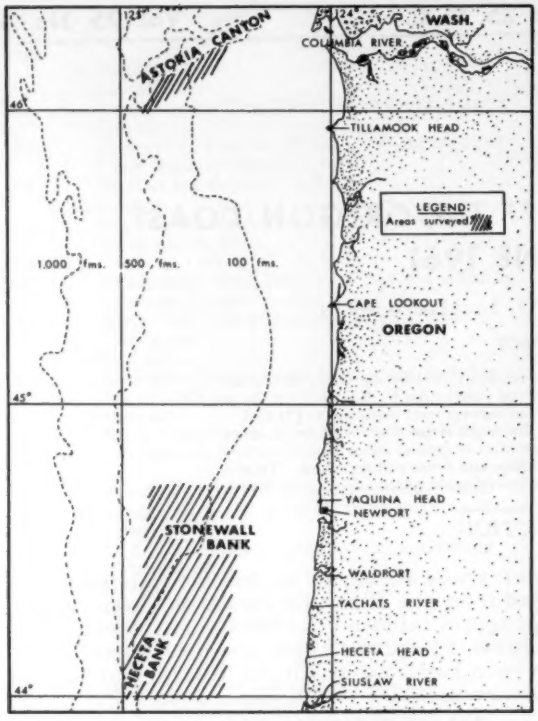

Fig. 1 - Region explored, Cruise 50, John N. Cobb.

METHODS AND GEAR

Bottom fish studies in relatively confined regions of abruptly changing bottom topography or rocky or hard bottom must be accompanied by echo-sounding surveys so that area suitable for trawling can be located and defined. For such areas it is not practical to preschedule sampling stations. Methods used in this survey were similar to those described by Hitz, Johnson, and Pruter (1961). They included (1) conducting a detailed echo probe or search of the region with a high-resolution, white-line echo sounder, (2) dragging a heavy chain over the bottom in areas suggested by the sounding as being free of snags or other hazards, and (3) dragging an otter-trawl net in areas apparently suitable for trawling.

At the beginning and end of each otter-trawl drag the position was determined by means of loran bearings. In most instances, exploratory drags lasted 60 minutes and tagging drags lasted about 30 minutes. When catches were brought on board they were spilled into deck checkers and sorted by species. During the cruise, all species were identified and counted regardless of their commercial value so that a complete cataloging of all species taken was obtained. Length frequencies were recorded, and otoliths and scales were removed from selected species for subsequent age determinations. When catches were large (greater than 5,000 pounds), subsamples were normally taken to determine quantities and sizes of each species. Specimens that could not be identified aboard the vessel were preserved for later laboratory study.

At the end of each drag a sample of the bottom was taken with a Dietz-LaFond sampler and surface-to-bottom water temperatures were obtained from a bathythermograph cast. At depths greater than 150 fathoms a reversing thermometer was used to obtain bottom water temperatures.

A standard 400-mesh eastern otter trawl-net rigged according to commercial practice was used to sample fish populations (Greenwood, 1958). When chain drags were made, the net was removed and a $\frac{3}{4}$-inch chain, 42 feet in length, was attached between the otter doors. A wet-or dry-paper white-line echo sounder (38 kc., 220 v., 60 cycle/sec. having a maximum depth range of 1,750 fathoms) was used for sounding.

RESULTS

CENTRAL OREGON AREA: Most of the bottom in the area surveyed off central Oregon was found to be extremely irregular and hard, but several trawlable grounds of soft bottom were located. Figure 2 shows the echo-sounding transects made and gives the interpreted substrate features. The trawlable bottom included the following grounds: (1) a relatively large area of approximately 100 square miles at depths ranging from 75 to 200 fathoms, true west of Stonewall Bank, (2) an area of approximately 20 square miles at depths between 58 and 66 fathoms on the east side of Heceta Bank, (3) an area along the 100-fathom contour just west of Heceta Bank, (4) an area extending along the 100-fathom contour north of Heceta Bank, and (5) a small deep-water area extending from about 90 to 300 fathoms, offshore from Wald-

port. The grounds inside the 200-fathom contour line, which were not sounded, were considered to be fished normally by commercial trawlers.

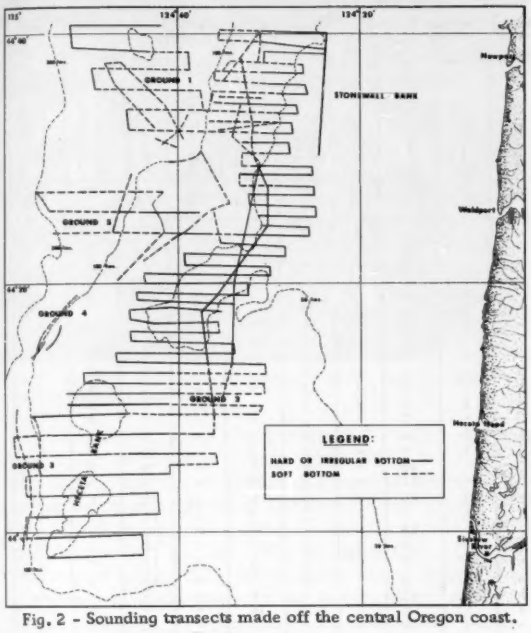

Fig. 2 - Sounding transects made off the central Oregon coast.

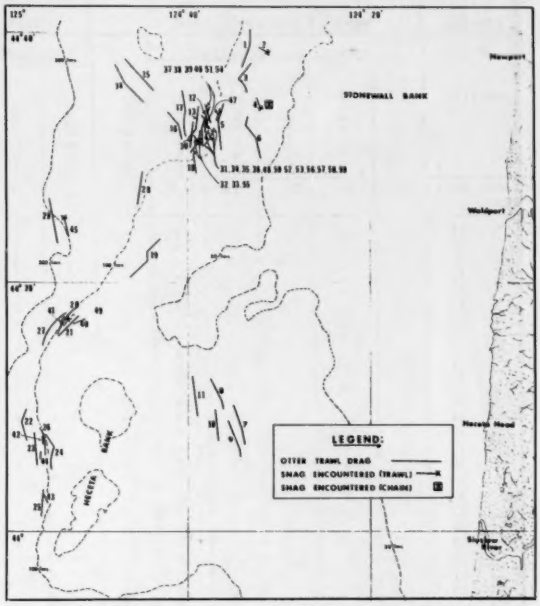

Fig. 3 - Location of net drags and snags encountered off the central Oregon coast.

Figure 3 shows the location of each drag made off central Oregon during this survey. Each drag is numbered and corresponds to the number in the fishing log provided in the appendix (available with the reprint of this article). The fishing log gives the pertinent data for each drag. Thirty-six drags were made in the trawlable area just west of Stonewall Bank (drags 1-6, 12-18, 30-39, 46-48, and 50-59). Of the total drags made on this ground, seven were unsatisfactory. Snags were encountered on two drags (drags 2 and 4) and the net was retrieved earlier than planned; the other five drags (drags 3, 6, 54, 55, and 59) were of the normal 60-minute duration, but considerable damage to the net resulted. Most of the gear damage and snags occurred in the shallower water around the 75-fathom contour adjacent to Stonewall Bank. Damage to the net that occurred on drags 54, 55, and 59 is believed to have been caused by outcroppings of coral. Successful drags were made in very close proximity to those which resulted in gear damage. Good catches made of Dover sole (Microstomus pacificus), sablefish (Anoplopoma fimbria), Pacific ocean perch (Sebastodes alutus), and red rockfish (Sebastodes sp.) are listed in table 1. Length frequencies of several species taken in this area are shown in table 2.

Table 1 - Catch in Pounds of the Dominant Species Taken on the Trawlable Area Found on the West Side of Stonewall Bank

Drag No.	Depth in Fathoms	Minutes Towed	Dover Sole	Sablefish	Pacific Ocean Perch	Red Rockfish	Total Lbs. All Species
1	90	60	Trace1/	Trace	-	40	270
5	100	60	75	Trace	138	50	500
12	120	90	102	-	944	290	1,830
13	150	80	246	76	535	1,100	2,070
14	180	90	66	Trace	38	200	350
15	180	90	320	410	Trace	260	1,125
16	180	60	400	1,440	Trace	415	2,600
17	160	90	52	160	40	125	440
18	100	35	Trace	650	262	41	1,435
30	120	60	200	-	2,000	100	2,675
31	120	20	500	-	50	-	665
32	130	22	-	100	400	70	620
33	130	22	350	25	1,000	-	1,440
34	115	15	300	75	300	-	765
35	115	15	300	150	200	-	800
36	114	20	200	70	350	-	770
37	112	20	450	40	150	-	765
38	115	20	100	50	200	-	420
39	117	20	400	50	150	-	710
46	116	20	100	75	50	-	325
47	110	20	250	100	50	Trace	510
48	115	20	350	450	75	-	1,130
50	115	20	500	200	400	-	1,450
51	100	15	100	150	150	20	540
52	110	17	125	150	300	100	835
53	115	15	100	200	100	-	530
56	115	20	150	250	200	70	810
57	112	20	200	350	100	20	590
58	112	20	150	300	250	90	1,140

1/Trace = less than 20 lbs.

In the area located on the east side of Heceta Bank, five exploratory drags were made (drags 7-11). All of the drags except one resulted in chaffed and town webbing, believed to

Table 2 - Representative Length Frequencies of Several Species Taken in Waters off the Oregon Coast

Area Sampled	West of Stonewall Bank						West side of Hecata Bank						West of Waldport			Southwest of the Columbia River		
	Sebastodes (Rockfish)						Sebastodes											
Species	rubrivinctus	diplopros	crameri	flavidus	alutus	Dover sole	pinniger	saxicola	diplopros	alutus	Dover sole	Sablefish	Sebastolobus alascanus	Dover sole	Sablefish	Sebastodes alutus	Sebastolobus alascanus	Sablefish
Drag No.	12	13	14	18	5,12	5,12, 14,15	21	21	22	20	42,43 44	22	29	29	29	60	63	62
Total Length in Centimeters 19	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-
20	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	2	-
21	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	2	-
22	-	-	-	-	-	-	-	11	-	-	-	-	-	-	-	-	5	-
23	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	4	-
24	-	2	-	-	-	-	-	2	-	-	-	-	-	-	-	-	3	-
25	-	2	-	-	-	1	-	-	-	-	-	-	1	-	-	-	12	-
26	-	10	-	-	-	-	-	-	-	-	-	-	2	-	-	1	9	-
27	-	17	-	-	2	1	-	3	-	-	1	-	1	-	-	1	13	-
28	-	23	-	-	4	-	-	7	1	-	-	-	1	-	-	1	14	-
29	-	30	-	-	4	5	-	25	2	-	3	-	2	-	-	1	4	-
30	-	51	-	-	9	6	-	20	4	1	5	-	3	-	-	3	6	-
31	-	33	-	-	10	4	-	9	7	-	5	-	3	-	-	3	6	-
32	-	24	-	-	9	12	-	4	24	1	14	-	4	-	-	5	6	-
33	-	10	3	-	8	12	-	-	14	2	9	-	5	1	-	4	3	-
34	1	3	3	-	5	24	-	-	26	-	19	-	4	5	-	4	3	-
35	-	2	3	-	11	23	-	-	17	-	11	-	3	5	-	5	-	-
36	-	1	7	-	9	34	-	-	15	3	16	-	3	6	-	6	1	-
37	-	2	3	-	18	15	-	-	7	1	7	-	2	9	-	11	-	1
38	-	-	4	-	10	24	-	-	-	-	13	-	3	9	-	13	1	-
39	-	-	4	-	18	18	-	-	1	5	9	-	3	5	-	10	3	4
40	1	-	2	-	16	20	-	-	-	15	6	-	2	4	-	17	-	1
41	-	-	8	1	9	16	-	-	-	25	4	-	1	3	-	16	2	2
42	1	-	5	8	7	12	-	-	-	18	11	-	2	6	-	9	-	9
43	1	-	4	3	9	7	1	-	-	5	6	1	3	4	-	7	1	2
44	-	-	-	14	3	7	3	-	-	7	6	-	-	7	-	1	-	12
45	4	-	-	14	-	2	3	-	-	4	5	-	1	3	-	1	1	7
46	3	-	1	20	-	5	3	-	-	9	4	1	1	-	1	1	-	7
47	1	-	-	16	-	2	5	-	-	13	-	1	-	3	2	-	-	6
48	3	-	1	11	-	3	5	-	-	9	-	1	-	-	1	-	-	2
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50	5	-	-	8	-	1	7	-	-	1	-	3	-	1	6	-	-	2
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56	1	-	-	-	-	-	-	-	-	-	-	1	-	-	11	-	-	-
57	1	-	-	-	-	-	-	-	-	-	-	3	-	-	8	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	1	-	-	4	-	-	1
59	-	-	-	-	-	-	-	-	-	-	-	2	-	-	5	-	-	-
60	-	-	-	-	-	-	-	-	-	-	-	1	-	-	3	-	-	-
61	-	-	-	-	-	-	-	-	-	-	-	1	-	-	3	-	-	1
62	-	-	-	-	-	-	-	-	-	-	-	2	-	-	2	-	-	-
63	-	-	-	-	-	-	-	-	-	-	-	1	-	-	4	-	-	-
64	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2	-	-	1
65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
66	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2	-	-	-
67	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1	-	-	1
68	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	1	-	-	3	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
77	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-
78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
No. in Sample	39	210	48	109	161	260	57	88	118	126	154	51	51	71	104	120	102	71
Av.L. cm.	49.2	29.8	38.8	46.5	36.4	37.61	49.5	27.8	33.6	42.9	36.8	58.0	35.3	39.4	57.3	37.9	28.3	46.6
Av.L. in.	19.4	11.7	15.3	18.3	14.3	14.8	19.5	10.9	13.2	16.9	14.5	22.8	13.9	15.5	22.6	14.9	11.1	18.3

have been caused by large boulders (fig. 4). The fish catch in that area was small, and the aggregate catches of all species did not exceed 300 pounds per drag.

Fig. 4 - Boulders commonly encountered in the area trawled on the east side of Heceta Bank.

The two trawlable grounds located on the west side of Heceta Bank were similar in bottom topography. A total of 8 drags were made on the southern ground (drags 22-26 and 42-44), and 6 drags were made on the northern one (drags 20, 21, 27, 40, 41, and 49). Large catches of up to 40,000 pounds were made on this ground with rockfishes being dominant. These catches of rockfish are shown in table 3. Representative length frequencies of rockfishes, Dover sole, and sablefish taken in the areas on the west side of Heceta Bank are shown in table 2. One 20-minute drag made just northwest of Heceta Bank (drag 41) produced an estimated 40,000 pounds of Pacific ocean perch, the largest trawl catch ever made by the John N. Cobb. An attempt to repeat drag 41, resulted in considerable damage to the net (drag 49). Another large catch of 11,000 pounds of ocean perch (fig. 5) was taken in this area (drag 20).

Fig. 5 - Eleven thousand pounds of Pacific ocean perch floating alongside the John N. Cobb.

Table 3 - Catch in Pounds of Rockfish Taken in the Areas Trawled on the West Side of Heceta Bank

Drag No.	Depth in Fathoms	Minutes Towed	Pacific Ocean Perch	Red Rockfish	Black Rockfish	Total Lbs. All Species
22	172-180	60	-	190	-	470
23	135-130	60	1,500	400	-	2,100
24	97-86	57	-	-	Trace	139
25	138-139	60	1,000	1,000	100	2,520
26	110-117	60	500	2,200	-	3,050
1/42	112	20	600	100	50	870
1/43	137	15	250	-	-	375
1/44	118	20	100	90	-	655
20	125-140	60	11,000	350	125	11,765
21	99-101	60	290	1,165	430	4,100
27	155-172	60	50	350	50	520
1/40	90-92	20	Trace	-	150	270
1/41	111-109	20	40,000	?	?	40,000

1/Tagging drags.

Four drags were made in the small area west of Yachats River (drags 19, 28, 29, and 45). One of two shallower drags (drag 19 in 84-73 fathoms and drag 28 in 140-128 fathoms), drag number 28 provided good catches of Dover sole and Pacific ocean perch. In deeper water, in 260 to 300 fathoms (drags 29 and 45), only one drag was successful (drag 29). That drag was dominated by sablefish. Length frequencies of the dominant species taken in those drags are provided in table 2.

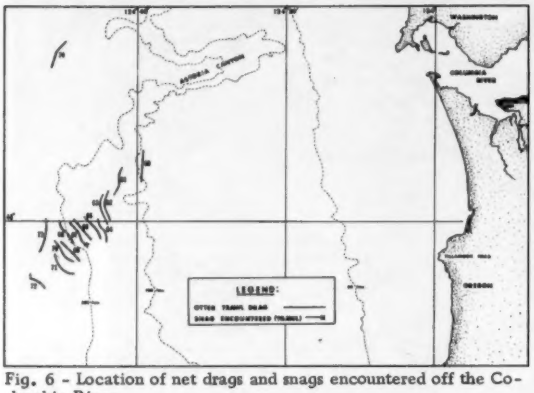


Fig. 6 - Location of net drags and snags encountered off the Columbia River.

COLUMBIA RIVER AREA: A track line was established off the south side of Astoria Canyon for future resurveying so that seasonal changes in distribution and abundance of fish and invertebrates could be evaluated. The locations of drags made off the Columbia River are shown in figure 6. Catches of Pacific ocean perch ranging from 1,200 to 3,500 pounds per drag were taken at depths between 123 and 220 fathoms (drags 61, 62, 63, and 64). Drags 65 and 66 (in 225 and 250 fathoms respectively) each produced catches of 1,000 pounds of Dover sole. Sablefish were commonly taken in drags 64 through 73 at depths ranging from 200 to 425 fathoms, with catch rates in that depth increment ranging from 150 to 700 pounds per hour. Length frequencies of sablefish, Pacific ocean perch, and idiot rockfish (Sebastolobus alascanus) found in the area are given in table 2.

INCIDENTAL SPECIES TAKEN: In addition to commercial species, numerous unutilized species of fishes and invertebrates were taken. A complete list of species found (table 4), by depth zone, is given in the appendix to the reprint of this article.

TAGGING: Biologists from the Oregon Fish Commission tagged 5,429 Dover sole during the survey in the central Oregon area. The sole were captured at depths ranging from 90 to 137 fathoms.

SUMMARY AND CONCLUSIONS

In the spring of 1961, the Exploratory Fishing Section based at Seattle explored areas off the Oregon coast not under commercial exploitation. The surveys were conducted with the Bureau's exploratory vessel John N. Cobb, which was equipped with a high-resolution, low-frequency echo sounder, a chain that was attached between the otter doors and was dragged in place of a net, and a standard commercial otter trawl.

The order of procedure in surveying an area was to (1) run a series of echo sounding transects to determine the character of the bottom, (2) drag a heavy chain over areas suggested by sounding as being trawlable, and (3) drag a commercial otter-trawl net over those grounds on which the chain was successfully towed.

Trawlable grounds and concentrations of commercially-valuable ground fish were found in the areas surveyed. Although the bottom in the central Oregon area was found to be extremely irregular and numerous rocks and other snags were encountered during trawling, a number of successful drags were made without damage to the gear. In the few drags in shallower water in which no damage to the gear was noted, catches of fish were small with aggregate catches of all species not exceeding 300 pounds per drag. Most common species taken in the shallower drags were flatfishes, including Dover sole, English sole, and turbot. Exploratory drags made along the Continental Break and Continental Slope at depths from about 90 to 150 fathoms were more successful and numerous catches of Pacific ocean perch exceeding 1,000 pounds per drag were taken. Fair catches of Dover sole and sablefish occurred in some of the drags. In drags made in the area southwest of the mouth of the Columbia River, Pacific ocean perch, Dover sole, and sablefish were the dominant commercial spe-

cies taken. Catches of Pacific ocean perch ranging from 1,000 to 3,500 pounds per 60 minutes of fishing were taken at depths between 123 and 220 fathoms. Good catches of Dover sole were made at depths from 225 to 250 fathoms. Sablefish were common at depths ranging from 200 to 425 fathoms.

APPENDIX

A detailed fishing log showing the fishing positions, time on bottom, catch particulars, and other pertinent data for each drag is available as an appendix to the reprint of this article. Write for Separate No. 677 which contains "Otter Trawl Fishing Log - M/V John N. Cobb - Cruise 50 - Off Central Oregon and the Mouth of the Columbia River."

LITERATURE CITED

ALVERSON, D. L.
1951. Deep-Water Trawling Survey off the Coast of Washington (August 27-October 19, 1951). Commercial Fisheries Review, vol. 13, no. 11 (November), pp. 1-16. (Also Separate No. 292.)

1953. Deep-Water Trawling Survey off the Oregon and Washington Coasts (August 25-October 3, 1952). Commercial Fisheries Review, vol. 15, no. 10 (October), pp. 5-15. (Also Separate No. 359.)

ELLSON, J. G.; KNAKE, B.; and DASSOW, J.
1949. Report of Alaska Exploratory Fishing Expedition, Fall of 1948, to Northern Bering Sea. Fishery Leaflet 342, U. S. Fish and Wildlife Service, Washington (June), 25 pp.

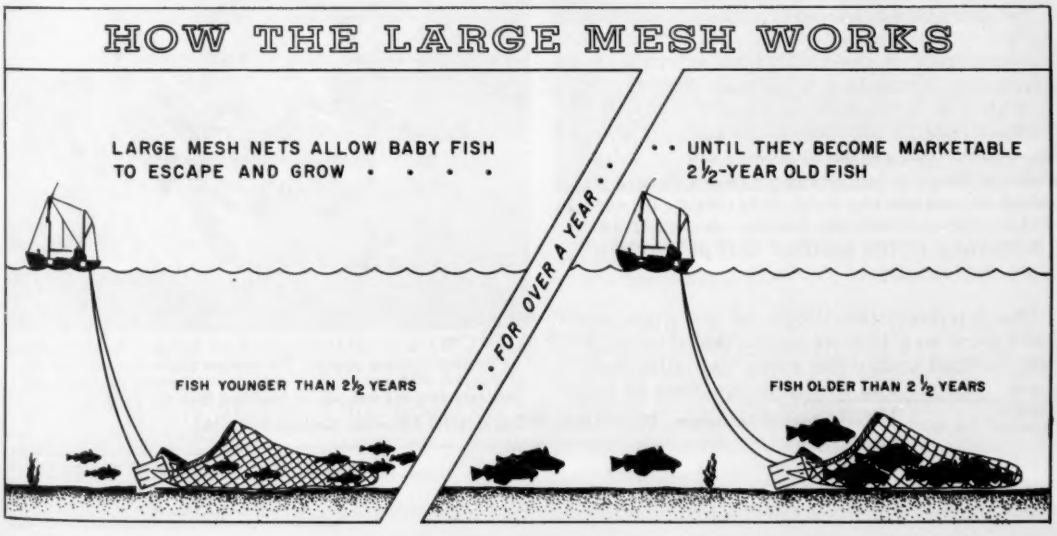
_____; POWELL, D. E.; and HILDEBRAND, H. H.
1950. Exploratory Fishing Expedition to the Northern Bering Sea in June and July 1949. Fishery Leaflet 369, U. S. Fish and Wildlife Service, Washington (March), 56 pp.

GREENWOOD, M. R.
1958. Bottom Trawling Explorations off Southeastern Alaska, 1956-1957. Commercial Fisheries Review, vol. 20, no. 12 (December), pp. 9-21. (Also Separate No. 532.)

HITZ, C. R.; JOHNSON, H. C.; and PRUTER, A. T.
1961. Bottom Trawling Explorations off the Washington and British Columbia Coasts, May-August 1960. Commercial Fisheries Review, vol. 23, no. 6 (June), pp. 1-11. (Also Separate No. 620.)

JOHNSON, H. C.
1959. King Crab, Shrimp, and Bottom Fish Explorations from Shumagin Islands to Unalaska, Alaska - Summer and Fall, 1957. Commercial Fisheries Review, vol. 21, no. 3 (March), pp. 7-19 (Also Separate No. 543.)

SCHAEFERS, E. A.; SMITH, K. A; and GREENWOOD, M. R.
1955. Bottom Fish and Shellfish Explorations in the Prince William Sound Area, Alaska, 1954. Commercial Fisheries Review, vol. 17, no. 4 (April), pp. 6-28. (Also Separate No. 398.)


HOW THE LARGE MESH WORKS
LARGE MESH NETS ALLOW BABY FISH TO ESCAPE AND GROW . . . .
. . FOR OVER A YEAR . .
. . UNTIL THEY BECOME MARKETABLE 2½-YEAR OLD FISH
FISH YOUNGER THAN 2½ YEARS
FISH OLDER THAN 2½ YEARS

ACCURACY OF THE OFFICIAL METHOD FOR DETERMINING BREADING PERCENTAGES OF FROZEN RAW BREADED SHRIMP

By Mary E. Ambrose* and Charles F. Lee**

ABSTRACT

The accuracy of the method provided in the U. S. Standards for Grades of Frozen Raw Breaded Shrimp for determining breading percentage was tested by preparing, freezing, and debreading samples of known breading content. The varying conditions normal to commercial practice were simulated by preparing samples, using combinations of 3 types of batters and breaders, 3 species of shrimp, 2 methods of holding prior to breading, and holding some samples in frozen storage. Storage samples were debreaded after 2, 4, and 6 months. The effects of operator differences and levels of breading were also studied.

The data on apparent change in breading content from 355 samples were statistically analyzed. It was found that iced or frozen storage of the shrimp prior to breading did not affect debreading behavior significantly. There were small but significant differences in apparent change of breading content, owing to species and batter variations. The average apparent change in breading content for this series of samples was -0.57 percent, and the statistical limit for inclusion of 95 percent of the samples was 1.74 percent. The corresponding values for another series of samples prepared to test another commercial line of breaders and batters were considerably lower than these.

On the basis of these data, it is recommended that the correction factor used in the calculation of shrimp material be changed to 2 percent. There were small variations in apparent change in breading content due to frozen storage, different operators, or levels of breading, but they were not sufficient to affect the recommended correction factor.

INTRODUCTION

The voluntary Standards for Grades of Frozen Raw Breaded Shrimp (U. S. Department of the Interior, 1958) provides that the product contain not less than 50 percent by weight of shrimp material. To permit objective determination of compliance with the Standards, the staff of the Technological Laboratory at College Park, Md., developed a method of analysis for percent of shrimp in the product.

Inasmuch as all analytical methods have some degree of variability, a tentative correction factor of 5 percent has been used in the calculation of the percent of shrimp in determining compliance with the Standards. Owing to a lack of data on all the many variables involved, this correction factor was made somewhat large in order not to penalize the producer for uncertainties in the method of analysis. It is desirable, however, to make the correction factor as small as the accuracy of the method will permit, to ensure uniformity of product.

The purpose, therefore, of the work reported here was to determine the accuracy of the method under the many variable conditions encountered in the production of fro-

Fig. 1 - This is the debreading machine that is in most general use by shrimp-breading plants. The geared shafts on each side of the center shaft permit the use of double brushes but these are less effective for removal of breading than the paddle.

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Fish and Wildlife Service
Sep. No. 678

zen raw breaded shrimp in order to make a recommendation as to the magnitude of a revised correction factor.

EXPERIMENTAL

This study consisted of preparing frozen raw breaded shrimp of known breading content and then analyzing the product by the official method for determining breading content. The difference between the known content of breading and the analytically determined content gave a measure of the accuracy of the analytical method.

PREPARATION OF SAMPLES: In the preparation of a sample of known breading content, 20 peeled, deveined, and split shrimp, with tailfins attached, were weighed, the shrimp were battered and breaded by hand, the breaded sample was weighed, and the percent of breading actually applied was calculated. The samples were packed in waxed cartons, overwrapped with moisture-vapor-proof cellophane, and frozen by being placed in single layers on a shelf of a still-air freezer at 0° F. for at least 24 hours.

Breading percentages ranged from 23 to 54, most samples being in the range of 35 to 45 percent.

ANALYSIS FOR BREADING PERCENTAGE: The breaded samples were reweighed when removed from the freezer to make certain that the loss of moisture during freezing was negligible. The shrimp were then debreaded by the official method in the Standards for Grade of Frozen Raw Breaded Shrimp (U. S. Department of the Interior, 1958). Samples were analyzed within 2 weeks after being prepared, except those for frozen storage.

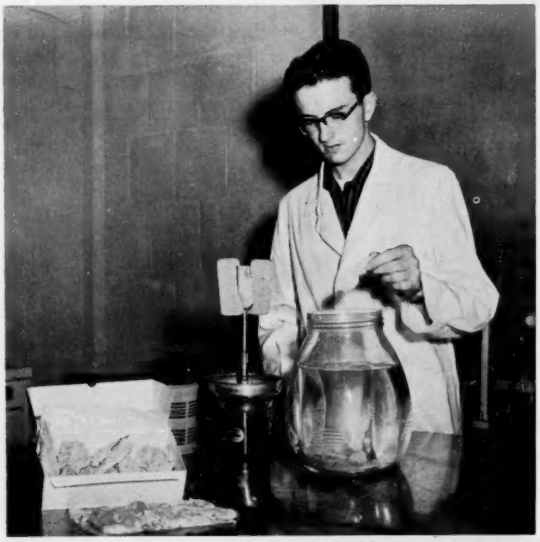


Fig. 2 - The operator is adding a weighed sample of breaded shrimp to an experimental debreader. The principal of paddle agitation was found to give the most efficient removal of all types of breading.

COMMERCIAL VARIABLES TESTED: Samples of known breading content were prepared and analyzed to test the effect of the variable conditions occurring normally in the commercial manufacturing process. The commercial variables tested were types of batters and breaders, species of shrimp methods of handling shrimp in the shell--whether iced or frozen, and time the breaded product was held in frozen storage. A flow diagram of the study is given in figure 3.

Types of Batters and Breaders[1/]: The wide variety of batters and breaders used in the industry could not be duplicated in the laboratory. Any effect of batters and breaders on the accuracy of the debreading method, however, would be largely due to the difference in time required to remove the breading. Therefore, the laboratory samples were prepared from a commercial breader that is used in a number of shrimp-breading plants, designated in the tables as breader C, and two batters that were formulated from varying proportions of eggs, milk or water, and breader C to give the extremes of debreading behavior. The batter A combination was removed with difficulty and sometimes imcompletely, but the batter B combination was removed easily. These two batters were used throughout the experiment to test the effects of the other commercial variables.

1/ "Batter" signifies dry batter mix, eggs and water or milk.
"Breader" signifies dry commercial mix for breading.
"Breading" or "breading content" signifies the entire coating, both batter and breader.

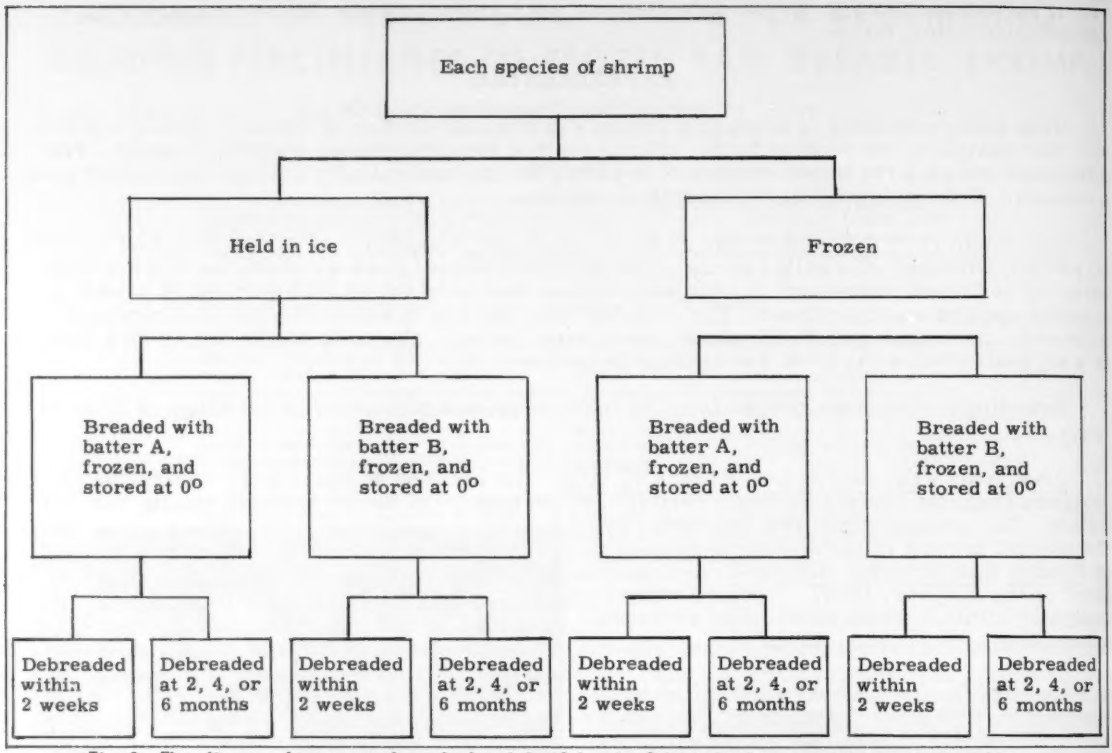

Each species of shrimp
Held in ice
Frozen
Breaded with batter A, frozen, and stored at 0°
Breaded with batter B, frozen, and stored at 0°
Breaded with batter A, frozen, and stored at 0°
Breaded with batter B, frozen, and stored at 0°
Debreaded within 2 weeks
Debreaded at 2, 4, or 6 months
Debreaded within 2 weeks
Debreaded at 2, 4, or 6 months
Debreaded within 2 weeks
Debreaded at 2, 4, or 6 months
Debreaded within 2 weeks
Debreaded at 2, 4, or 6 months

Fig. 3 - Flow diagram of treatment of samples breaded with breader C for study of commercial processing variables.

Another series of samples was prepared to test a variety of batters and breaders obtained from another large commercial producer. These batters and breaders have been given the designation D. Some of the dry mixes were intended for use as both batter and breader and therefore are designated by the same number.

Species of Shrimp: Producers of breaded shrimp use any of the commercial varieties of shrimp that are of a proper size for breading. Samples utilized in this study were prepared from the following species of shrimp:

1. Brown shrimp (Penaeus aztecus) from the Gulf of Mexico (various ports).
2. Pink shrimp (Penaeus duorarum) from the Gulf of Campeche (Tampa) and Tortugas grounds (Key West).
3. White shrimp (Penaeus setiferus) from South Atlantic (Georgia).
4. "White" shrimp from Pamlico Sound (North Carolina). These shrimp were the color of the usual white shrimp, P. setiferus, and were purchased for white shrimp but were grooved, which is characteristic of brown and pink shrimp.

All brown iced shrimp were obtained from Brownsville and Tampa, and some of these were frozen in the shell. Some frozen brown shrimp were obtained locally, with no knowledge of the location of the packer except that they were produced in the United States. The data from samples prepared from these various lots of frozen brown shrimp were found to show no significant differences when analyzed statistically, so these data were combined.

The two lots of pink shrimp were handled separately, owing to the known wide separation in fishing grounds and the unusual data obtained from the samples prepared from pink shrimp from the Dry Tortugas grounds.

The Pamlico Sound shrimp were all obtained from one producer over a 3-month period during one season. Variations in debreading behavior were small from lot to lot, so these data were combined.

Brown iced shrimp from Brownsville, Texas, were used to prepare the samples to test D batters and breaders. Control samples were prepared from batter A and breader C, as previously used.

Previous Handling of Shrimp: Almost all producers of breaded shrimp are located near shrimp-producing waters and use locally-caught shrimp when available. In off-seasons, they must rely on shrimp frozen in the shell either from their own storage or from other sources, including an increasing quantity of imports from other countries. The experimental lots of shrimp of each species were divided into two parts. One-half was shipped and held in crushed ice until breaded. The other half was frozen in the shell either before shipping or after arrival at the laboratory. After at least 5 days in frozen storage, these shrimp were thawed and breaded. Thus 2 series of samples were obtained from each species to correspond to the 2 holding conditions encountered in industry for the raw material.

Storage Studies: In addition to the debreading of samples immediately after they were frozen, samples were stored at 0° F. to determine the effect of frozen storage on the accuracy of the debreading process. Samples were debreaded after intervals from 2 to 6 months in 0° F. storage.

OPERATOR VARIANCE: The actual debreading process is mechanical and permits little variation between operators. After agitation, however, the shrimp are individually rinsed under a spray of water to remove loose particles of breading. A flick of the thumbnail is sometimes necessary to aid the spray of water to dislodge large areas of remaining breading. Although care is taken not to exert pressure of the fingers on the shrimp flesh, it is possible that different operators would obtain different results. The data were regrouped by debreading operators to determine if operator variance was significant. The debreading data from five operators were studied. Two of the operators were inexperienced.

VARIANCE DUE TO BREADING LEVEL: The debreading data were regrouped by breading levels, in ranges of 5 percent breading applied, from 30.1-35.0 percent to 45.1-50.0 percent. The purpose was to determine if the level of breading applied to the shrimp affected the accuracy of the debreading method.

Fig. 4 - The debreaded shrimp are drained on an inclined screen. The operator is picking particles of shrimp meat from the removed material, this operation is not normally required as the amounts of separated flesh rarely is enough to weigh on a gram scale.

RESULTS AND DISCUSSION

COMMERCIAL VARIABLES TESTED: Species, Batter, and Handling Condition: A total of 355 samples were prepared from batters A and B and breader C and were analyzed within 2 weeks. The effect of frozen storage will be considered separately. The number of samples for each combination of species, batter, and handling condition varied from 8 to 49. These data were subjected to statistical analysis. Significant differences were found for variations in species and batter but not for the previous handling of the shrimp. The data therefore were combined for the samples prepared from iced and frozen shrimp of each species and batter. The data for the testing of commercial variables except storage are presented in table 1.

Table 1 - Apparent Change in Breading Content with Variations of Species of Shrimp and Batters

Shrimp Used					Apparent Change in Breading Content[1]			
Species	Location of Catch	Number of Lots	Batter[2]	Number of Samples	Range	Mean	Standard Deviation[3]	Statistical Limit for Inclusion of 95 Percent of Samples
					(Percent)			
Brown	Gulf of Mexico	5	A	50	-3.6 to 2.8	-0.40	1.49	2.0
			B	32	-3.0 to 3.2	-0.15	1.33	2.0
Pink	Campeche	2	A	58	-4.4 to 1.4	-0.96	1.43	1.4
			B	59	-4.3 to 2.0	-0.96	1.41	1.4
Pink	Dry Tortugas	1	A	20	-3.3 to 4.5	-0.38	2.18	3.2
			B	21	-3.7 to 0.7	-2.10	0.81	-0.8
White	Georgia Coast	1	A	16	-0.6 to 3.0	1.06	1.23	3.1
			B	16	-3.6 to 1.1	-0.98	1.49	1.5
"White" grooved	Pamlico Sound	5	A	52	-4.6 to 3.3	-0.43	1.55	2.0
			B	31	-1.5 to 2.6	0.26	0.95	1.8
Total		14		355	-4.6 to 4.5	-0.57	1.41	1.74

1/Percent breading by analysis minus percent breading applied.
2/Batter A prepared from eggs, milk, and commercial breader C.
Batter B prepared from eggs, water, and commercial breader C.
3/Deviation from the arithmetic mean of the apparent changes.

The values obtained for individual samples for apparent changes in breading content were both positive and negative for most groups of samples. All but two of the mean values were negative. The range or variation, however, was greater for some groups of samples than for others, as is shown by the values for the standard deviations.

Several groups of samples exhibited unusual apparent changes in breading content. The mean values for Dry Tortugas pink shrimp batter B samples and the Georgia Coast white shrimp batter A samples showed unusually large deviations from the mean value for all samples. Also the Dry Tortugas pink shrimp batter A samples gave a very wide range for apparent changes in breading content, resulting in a high standard deviation. These samples were prepared from only one lot of shrimp of each species and were therefore the smallest groups of samples analyzed. It is quite possible that further sampling of these species would result in values for the means and standard deviations more nearly approaching those for the whole series of samples.

These data indicate that the tentative correction factor of 5 percent is too large. A correction factor large enough to include 95 percent of the samples analyzed would properly protect the producer and ensure to the consumer a better and more uniform product at any stated level of breading. The apparent change in breading content which includes 95 percent of each group of samples is given in the last column of table 1. For the total number of samples the value is 1.74 percent, and of the groups of samples, only 2 small groups exceed 2 percent. It is therefore recommended that the correction factor be changed from 5 percent to 2 percent.

Table 2 - Apparent Change in Breading Content with Various Combinations of D[1] Batters and Breaders Applied to Iced Brown Shrimp

Batter[2]	Breader[3]	Apparent Change in Breading Content[4]			
		Range	Mean[5]	Standard Deviation[6]	Statistical Limit for Inclusion of 95 Percent of Samples
		Percent	Percent	Percent	Percent
1	7	-5.4 to 0.9	-2.15	1.64	0.53
2	8	-3.7 to 0.4	-1.45	1.40	0.84
3	8	-3.0 to 1.6	-1.04	1.42	1.28
4	8	-4.3 to -1.2	-2.43	0.96	-0.86
5	5	-6.5 to -2.1	-3.56	1.40	-1.27
6	6	-5.2 to -0.5	-3.11	1.47	-0.70
A[7]	C[8]	-2.5 to 2.8	0.45	1.28	1.64

1/Commercial line of batters and breaders.
2/Dry commercial mixes with water.
3/Dry commercial mixes, some also used for batter preparation.
4/Percent by breading analysis minus percent breading applied.
5/Average of 10 samples.
6/Deviation from arithmetic mean of the apparent changes.
7/Control--eggs, milk, and breader C.
8/Control--commercial breader C.

Table 2 gives the data for the 60 samples prepared from D batters and breaders. Without exception the mean values were negative, and the statistical values for apparent change in breading content that include 95 percent of the samples were all well below the suggested 2 percent.

Storage Studies: A total of 183 samples were stored for periods up to 6 months. For each group of a certain species and batter, the apparent change in breading content varied somewhat from that of the respective samples not subjected to frozen storage. There was no trend in the changes with increasing storage time, and the magnitude of the changes did not affect the recommended 2 percent correction factor.

OPERATOR VARIANCE: There were very slight variations due to operators, but the effect of even the inexperienced operators was not sufficient to affect the recommended correction factor.

VARIANCE DUE TO BREADING LEVEL: When the data were regrouped by breading levels, the apparent changes of breading content were of the same general magnitude and showed no significant differences.

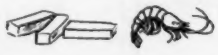
SUMMARY AND CONCLUSIONS

The apparent change in breading content was studied on 355 samples of breaded shrimp prepared from a commercial breader, designated as C, and from different species of shrimp and batters, and with different holding conditions (iced or frozen) of shrimp in the shell. The difference between the actual breading applied and the breading content by analysis was taken as a measure of the accuracy of the method. No significant differences were found for the different holding conditions of the shrimp in the shell. There were differences due to variations in batter and species of shrimp. However, the statistical limit for inclusion of 95 percent of the samples for all combinations of species and batters supports the recommendation for a 2 percent correction factor for breading percentage.

Another series of samples was prepared and analyzed for breading content, using commercial batters and breaders from another manufacturer, designated as D. The apparent changes in breading content for these samples varied significantly from control samples but in such a direction that they are all well below the suggested 2 percent correction factor.

A total of 165 samples were stored at 0° F. for periods up to 6 months duration. Differences were found for storage samples of some species and batters compared to the respective samples debreaded soon after being frozen, but there was no trend in the differences with increased storage time. No differences due to storage were sufficiently large to preclude the use of the suggested 2-percent correction factor.

The data from the major series of 355 samples were regrouped by debreading operators and then again by breading levels. Only minor differences were apparent for either of these two factors.



As the Nation's principal conservation agency, the Department works to assure that nonrenewable resources are developed and used wisely, that park and recreational resources are conserved for the future, and that renewable resources make their full contribution to the progress, prosperity, and security of the United States--now and in the future.

THE LINE-TRAWL FISHERY FOR COD AND HADDOCK AT CHATHAM, MASSACHUSETTS

By Albert C. Jensen* and Robert K. Brigham**

ABSTRACT

The line trawl was developed in New England about 100 years ago and, until the introduction of the more efficient otter trawl, was the principal gear used in the cod and haddock fishery. Line trawls are still fished today from small boats, particularly over bottom too rough for otter trawling.

Chatham, Mass., is the home port for a fleet of line trawlers that fish with two-man crews and land the fish in prime market condition. Annual landings are on the order of 1.7 million pounds, mostly cod and haddock. The gear, the boats, the fishing operation, and the catch of the Chatham fleet are described and illustrated.

INTRODUCTION

The line trawl was once the principal gear used by the New England fishing industry but it has been replaced by the more efficient otter trawl, particularly on the off-shore fishing grounds. However, the old style gear is still used in many parts of New England. On some fishing grounds it is the only gear that can be used because the bottom is too rough for otter trawling. This article is an attempt to document the fishery as it exists today at one of the New England centers of line-trawling fishing, Chatham, Mass.

FISHING GEAR

In other parts of the country this gear is sometimes called a long line, but in New England it is called a line trawl. It was developed from the older hand line and consists principally of a horizontal ground line with short ganging lines, each with a baited hook, attached at intervals. Two similar types of gear, a halibut long line and a steel cable long line, are illustrated by Dumont and Sundstrom (1961).

A "tub of trawl" is the unit of gear. The tub itself is a half barrel and is the container in which the trawl is stored before and after it is fished. The gear (table 1) consists of 10

Table 1 - Specifications of Chatham Line-Trawl Gear

Item	Size or Weight	Approximate Dimensions	Material
Ground lines	18 lbs. per 50-fathom bundle	3/16-1/4" dia.	Tarred cotton or nylon
Ganging lines	3-1/2 lbs. per 50-fathom bundle	1/16-3/32" dia.	Tarred cotton
Buoy lines	32 lbs. per 50-fathom bundle	3/8-1/2" dia.	Tarred cotton or manila
Hooks	6/0 Pflueger	2" length over-all	Steel
Anchors	12 lbs. at start of string	36" length over-all 24" width across flukes	Steel
	6 lbs. at end of string	30" length over-all 20" width across flukes	Steel
Kegs	8-gallon capacity	12-1/2" dia. at bulge	Wood
		18-1/2" length over-all	
Poles	14 feet long	1-1/2 to 2" dia. at butt end	Bamboo or Calcutta cane

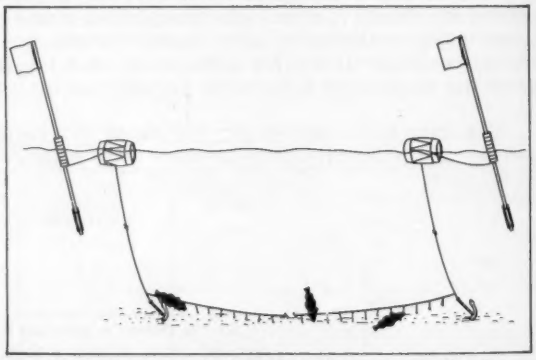


Fig. 1 - Diagrammatic sketch showing the layout of a New England line trawl in a fishing position. The details of the parts of the trawl are described in table 1.

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connected sections of ground line, each 50 fathoms long. Lengths of ganging with 6/0 hooks are fastened to the ground line at 6-foot intervals. Thus there are about 500 hooks per tub of trawl. The length of the ganging varies and depends on the height of the vessel's rail above water, and is gauged to enable the fishermen to bring the fish into the boat in an easy operation.

When the trawl is fished, it is rigged in strings consisting usually of $1\frac{1}{2}$ tubs of trawl. Sometimes two tubs will be set in a string. A $1\frac{1}{2}$ tub string consists, then, of a ground line 4,500 feet long with about 750 hooks. A cane pole with a small flag is attached with a 10-foot-length of buoy line to a wooden keg and floats on the surface as a marker at each end of the string. The kegs are connected with long buoy lines to anchors that hold the ground line on the bottom (fig. 1). The boats from Chatham usually fish in depths of from 20 to 30 fathoms.

LINE TRAWL BOATS

The vessels engaged in the Chatham line-trawl fishery are of the type known as a Cape Island or Jonesport boat. The basic design of the vessel is described by Chapelle (1955). Locally they are called "Novie (Nova Scotia) boats", or "Novie lobster boats." A typical Chatham boat (fig. 2) is 33.7 feet long, 11.0 feet beam and 4.9 feet draft, and is registered at 13 gross tons and 12 net tons. It is powered by a 165 h.p. gasoline engine and carries a two-man crew.

Fig. 2 - The Hazel Y., a 34-foot-long Chatham vessel engaged in the line-trawl fishery.

FISHING OPERATIONS

A typical day of line-trawl fishing at Chatham begins about 2:00 a. m. (two hours later in the winter) when the fishermen bait the hooks and coil the line in the tubs preparatory to steaming out to the fishing grounds. The kind of bait that is used depends on its availability and the season. Squid is sometimes used in the summer, particularly when fishing for cod. Mussels or sea clams are used in the winter. Cut, frozen herring is often used, particularly when the other kinds of bait are not available.

The boats leave the pier about 3:00 or 4:00 a.m., often taking advantage of high tide to get over the shallow entrance to the harbor. Final baiting of hooks and other preparation of the gear are done on the way to the grounds. The most productive ground is "The Mussels" located about 18 miles south-southeast of Pollock Rip lightship. The bottom here is too rough for otter trawls but yields excellent catches of groundfish, particularly cod (Gadus morhua) and haddock (Melanogrammus aeglefinus), to the line trawlers.

When the vessel reaches the fishing ground the gear is set out. A flag and keg are set over the side and the buoy line paid out by flipping it over the after port rail with a short, wooden "heaving stick." Then, the first anchor is dropped. The ground line with the attached ganging lines and baited hooks are next flipped out with the heaving stick (fig. 3). Finally the second anchor and a keg and flag are set out. The trawl is now fishing on the bottom.

Sometimes only one tub is set out and allowed to "soak" for as long as it takes the boat to return to the first buoy. The gear is immediately hauled back and the abundance of food fish determined by the catch on the line. If the catch is good, 2, 3, or 4 strings may be set; the first string is hauled back as soon as the last one is set. Hauling back (figs. 4, 5, 6 and 7) is simply a reversal of the setting out procedure. The first keg and flag are hauled into the boat and then the buoy line is hauled in over the roller-rail. When the anchor is brought into

Fig. 3 - Setting the trawl. As the boat moves ahead about half speed, the ground line, with the attached ganging lines and baited hooks, is flipped clear of the tub with a light, wooden stick.

Fig. 5 - A gaff is used to boat large fish, particularly the soft-mouthed haddock, as shown here. As one man hauls in the line and handles the fish, the second man coils the gear into the tub.

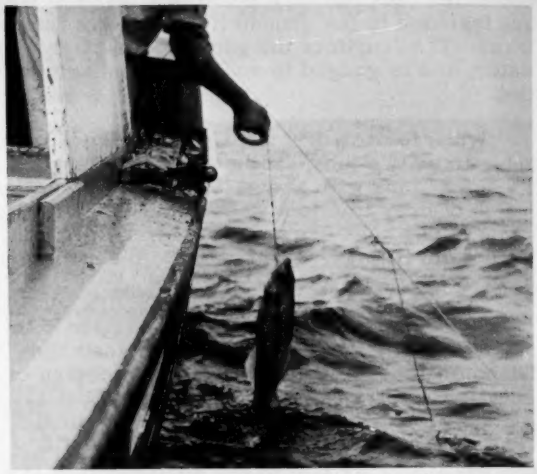


Fig. 4 - The ground line with a hooked haddock is hauled back hand-over-hand. The fisherman's hands are protected by doughnut-shaped, woolen "nippers" that insure a firm grip on the line but permit bare-finger freedom of movement.

Fig. 6 - When a fish is brought aboard it is "slatted off" the hook into the fish box (foreground).

the boat, the ground line is unfastened and hauled in, hand-over-hand, over the roller-rail. One man hauls in the line and maneuvers the boat by adjusting the wheel and engaging and disengaging the clutch, thus keeping the boat broadside to the line. The other man coils the gear into the tub. A gaff is used to haul in large fish, especially the soft-mouthed haddock, that might otherwise drop off the hook. Food fish are placed in pens on each side of the cockpit; unwanted fish and unused bait are shaken off the hook to fall back into the water. As the gear is coiled back into the tubs it is examined for damaged hooks or frayed ganging and ground lines. At the end of the ground line the last anchor, keg, and flag are hauled into the boat.

Fig. 7 - Coiling the gear back into the tub. During this operation the fisherman checks for damaged hooks or worn or frayed ganging and ground lines.

In the summer months, large sharks, particularly the blue shark (Prionace glauca), cause a great deal of damage to line trawls. The sharks may tangle the ground line into a hopeless snarl and often bite the ground line and sever it. Spiny dogfish (Squalus acanthias) are another serious pest. Frequently they devour the bait and are hooked, or feed on the hooked cod and haddock leaving only the head and part of the spinal column. When spiny dogfish are very abundant, the line trawl fishermen are unable to use the gear and resort to jigging with hand lines and artificial lures.

Fig. 8 - All the fish are eviscerated and the large cod are beheaded as the vessel returns to port. The catch includes cod, with the light line on the side, and haddock, with the dark line on the side.

The catch is dressed as the vessel returns to Chatham (fig. 8). During the winter months, when the fish are not as abundant and the most productive grounds are not readily accessible, a good trip will average about 2,000 pounds of dressed fish. During the summer months a good trip will average about 3,000 pounds of dressed fish, and under ideal conditions line trawlers occasionally land 3,500 to 4,000 pounds per trip.

The vessels usually return to the Chatham fish pier about 3:00 p.m. The fish are unloaded with a pitch fork from the boat to a large steel bucket that is hoisted to the dock when full. The bucket slung from an overhead rail, then is rolled into the packing house. After the catch is unloaded (figs. 9, 10, 11, and 12), the species are separated by hand and packed with ice in wooden boxes. The Chatham boats carry no ice but the catch is landed within 4 or 5 hours of the time the fish are taken from the water and thus is quite fresh when boxed for shipment. The boxes are then shipped in refrigerated trucks to New York, Boston, and other nearby eastern cities. The cod are sold mostly in the New York area whereas the haddock are sold mostly in the Boston area. This separation of species is dictated by consumer preferences in those areas.

LANDINGS

Over the 5-year period 1957-1961, food fish landings at Chatham averaged about 1.7 million pounds a year (table 2). The size distribution of a sample of 207 cod caught by a Chatham line-trawl vessel is shown in table 3. It is noteworthy that in the cases of cod and haddock, almost no scrod (fish that weigh $1\frac{1}{2}$ to $2\frac{1}{2}$ pounds, gutted) are landed. The majority of the fish are in the "large haddock" (more than $2\frac{1}{2}$ pounds, gutted) and "market cod" ($2\frac{1}{2}$ to 10 pounds, gutted) categories. This is in contrast to otter-trawl landings where scrod cod and scrod haddock (particularly the latter) make up a large part of the landings of the two species. Presumably this is because the smaller fish are not easily caught by the relatively large, baited hook of the line trawl.

A small-scale fishery of this type has some advantages that cannot be matched by fisheries using more complex gear, and the capital outlay for the boat is considerably less. From the fisherman's viewpoint, the line-trawl fishery yields a comparatively large quantity of high quality fish that bring a very good price with a relatively low overhead cost. The quality of the fish is maintained by the 1-day delivery schedule, and the product is sought by

Fig. 9 - Tying up at the pier to unload the catch. At Chatham most of the vessels return about midafternoon so usually there is a lot of shifting of lines as each vessel takes its turn to unload.

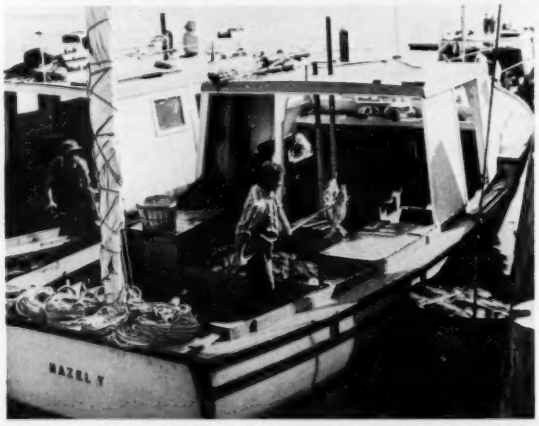


Fig. 10 - Unloading the catch. An average good trip will yield about 2,500 pounds of fish, mostly cod and haddock.

Fig. 11 - A pitch fork is used to transfer the fish from the vessel to the bucket. When the bucket is filled it is hoisted to the top of the pier.

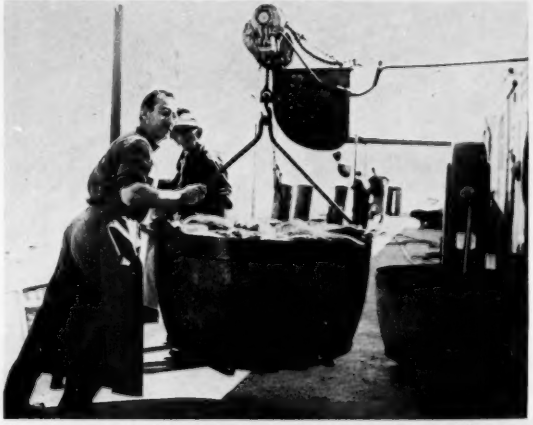


Fig. 12 - The bucket of fish is moved on an overhead trolley into the packing room. The fish are separated by species and packed with ice in wooden boxes for shipment to Boston, New York and other eastern cities.

Table 2 - Annual Landings at Chatham, Massachusetts, 1957-1961

Species	1961	1960	1959	1958	1957
	(1,000 Pounds)				
Cod:					
Large	741	523	566	450	515
Market	293	468	570	198	159
Scrod	5	-	-	-	-
Total Cod	1,039	991	1,136	648	674
Haddock:					
Large	902	788	584	697	707
Scrod	-	-	-	-	2
Total Haddock	902	788	584	697	709
Hake, White	5	4	7	10	11
Wolffish (Catfish)	6	8	10	8	18
Halibut	26	11	10	14	15
Misc. species	41	52	48	21	14
Total Other Species	78	75	75	53	58
Grand Total	2,019	1,854	1,795	1,398	1,441

Table 3 - Percent Size Composition and Market Classification of a Sample of Cod Caught by a Chatham Line Trawl

Length Class	Number of Fish	Market Category 1/
Centimeters	Percent	
21-30	0.5	sub-market (released)
31-40	3.0	
41-50	16.9	scrod
51-60	24.1	market
61-70	19.3	
71-80	15.9	
81-90	13.0	
91-100	6.3	large
101-110	1.0	
	100.0	

1/Market category is approximate. In actual practice the categories are based on weight and not length of fish.

the restaurant trade and the fresh fish markets. Furthermore, from the biological viewpoint, the line trawls tend to conserve the fishery by removing the larger and older fish and sparing the smaller, younger fish for later harvest. In summation, the Chatham line-trawl fishery appears to be in the fortunate position of supplying a high quality food product to a ready market under economic and biological conditions that suggest stability of the fishery for the future.

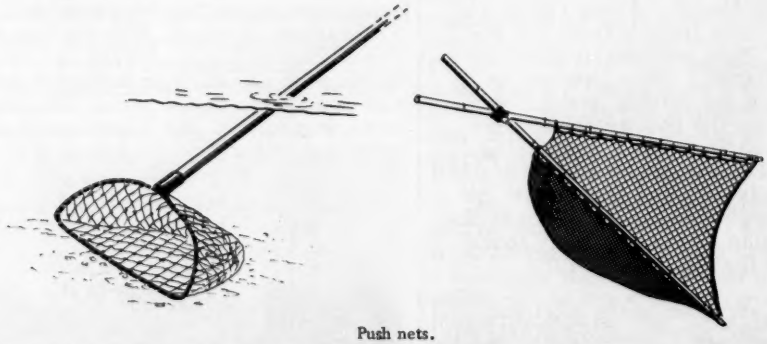
LITERATURE CITED

CHAPELLE, H. I.
1955. Some American Fishing Launches. in Jan-Olof Traung (editor), Fishing Boats of the World, Arthur J. Heighway Publications Ltd., London, pp. 1-12.

DUMONT, W. H. and G. T. SUNDSTROM
1961. Commercial Fishing Gear of the United States. U. S. Fish and Wildlife Service, Bureau of Commercial Fisheries, Circular 109, 61 pp.

PUSH NET

A push net is a modification of a dip net. It is constructed of a shallow wire or webbed mesh bag attached to a wooden or metal frame which has a handle. In fishing, it is pushed over the bottom in shallow water.



Push nets.

Note: Excerpt from Circular 109, Commercial Fishing Gear of the United States, for sale from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., single copy, 40 cents.

TRENDS AND DEVELOPMENTS

Alaska

JAPANESE FISHERMEN NOT EXTRADITED FOR VIOLATION OF FISHING REGULATIONS:

The State Attorney for Alaska stated on March 16, that Alaska did not plan to extradite three Japanese fishermen arrested in April 1962, during the Shelikof Straits controversy. The captains of three vessels of a Japanese herring fishing fleet were arrested by State of Alaska enforcement agents and charged with violating Alaska's commercial fishing regulations. They were later released on bail and returned to Japan. Reports were that Japanese fishing companies proposed to purchase herring in the Cordova area and chum salmon in the Ketchikan area. The State of Alaska feels the Japanese have, because of those developments, changed their policy in regard to fishing in State claimed waters. Therefore, they considered it unnecessary to press for extradition of the Japanese fishermen arrested in 1962.

* * * * *

FOREIGN FISHING ACTIVITIES IN BERING SEA AND GULF OF ALASKA:

Soviet and Japanese fishing activity began building up during March. About 120 to 140 Russian vessels were fishing from the vicinity of Unimak Pass northward to the area of the Pribilof Islands. As in past years, they were utilizing the Bering Sea ice pack for protection from the bad weather prevalent in that area during winter and spring. By month's end, Soviet trawlers were sighted in the Gulf of Alaska fishing for Pacific ocean perch, presaging an early return to the grounds the Russian fleet apparently found profitable during the summer of 1962.

The Japanese stern trawlers Akebono Maru No. 51 and No. 52 conducted winter exploratory fishing operations in both the Gulf of Alaska and Bering Sea. By the end of March both vessels were en route to Japan.

The Chichibu Maru accompanied by seven 260-ton trawlers, Nisshin Maru Nos. 50 to 55 and Taiyo Maru No. 11, began fishing for shrimp in the vicinity of the Pribilof Islands early this year. At the end of March, they were reported to be in the vicinity of Unimak Island where they were making good catches.

The freezership Chichibu Maru No. 2 and six catcher vessels departed Japan on February 25 and were believed to be fishing on the Eastern Bering Sea trawling grounds.

* * * * *

EXPANSION OF RUSSIAN AND JAPANESE KING CRAB FISHING INTO GULF OF ALASKA PREDICTED:

Japanese sources were quoted as predicting the expansion of the Soviet Union king-crab fishing in 1963. It was reported that the Russians may move south of the Alaska Peninsula with at least two crab factoryships during the coming season. Previously the Soviets had confined their king-crab operations to the Bristol Bay area.

Translations of various Soviet fishery journals reported the arrival in Vladivostok of additional new units to the Soviet Far Eastern crab fleet, including the ultra-modern vessels Aleksander Obukhov, Eugenii Nukishin, and Pavel Chebotniagin. Those vessels are sisterships to the earlier Andrei Zakharov, and are in addition to the ten older fleet units extant. In addition, the Japanese press reported

Russian king crab factoryship Andrei Zakharov.

the factoryship Kyokusei Maru (5,504 gross tons) and eight catcher vessels have been licensed to fish for king crab in the Gulf of Alaska for six months beginning in May.

Should those developments take place, it was anticipated there would be protests from members of the developing Alaskan king crab industry and from various public officials. It was also expected that the gear conflict and interference problem might be accentuated.

* * * * *

JAPANESE FIRM SHOWS INTEREST IN PURCHASING ALASKA SALMON:

News that a Japanese firm may buy chum salmon in Southeastern Alaska was widely circulated in Ketchikan fishing circles during March. First reports were that a cold-storage plant in Alaska had arranged for the Japanese "mothership" to purchase salmon directly from the fishermen, and processing and freezing them aboard the vessel for the Japanese market. However, problems developed with that proposal. A newer plan was for the Alaskan cold-storage plant to do the processing and freezing with the Japanese firm taking delivery at the cold-storage dock. But some questions were raised as to how successful such an operation would be. An official of the cold-storage plant stressed that the proposed deal includes provision that the chum salmon would not be reexported to the United States.

* * * * *

WINTER CATCH OF HERRING FOR BAIT LOWER:

The annual winter harvest of herring for bait in the Ketchikan area was completed in March. For the second consecutive year herring did not appear in abundance in Revilla Channel but were caught in more distant waters. The total catch was considerably below the approximate 2.5 million pounds caught in 1962 because of cold-storage holdovers, more bait fishing conducted westward, and increasing use of alternate baits for halibut.

* * * * *

VESSELS PREPARE FOR EARLY HALIBUT FISHING SEASON:

Approximately 30 halibut vessels loaded ice, bait and supplies at Ketchikan in mid-March prior to departing for the Bering Sea for the opening of fishing on March 25. Several of the boats carried cargoes of octopus bait from Ketchikan to cold-storages in westward Alaska. The first trip of Bering Sea halibut was expected to arrive in Ketchikan during the week of April 8.

* * * * *

CHIGNIK RIVER RED SALMON FORECAST FOR 1963:

Chignik (Alaska Peninsula) runs of red salmon during the past 10 years ranged in size from 410,000 to 1,425,000 fish and averaged slightly over 800,000 fish annually. The forecast for 1963 is 1,348,000 fish. It was reported that possible errors in the forecast method used at Chignik, including variations in ocean survival, sampling error, and escapement enumeration error, could cause sizeable deviation from the 1963 prediction.

Alaska Fisheries Investigations

The following is a report of the March 1963 activities and studies by the U. S. Bureau of Commercial Fisheries Biological Laboratory, Auke Bay, Alaska.

PINK SALMON SPAWNING CHANNEL AT OLSEN BAY TO BE IMPROVED:

Representatives of the U. S. Bureau of Commercial Fisheries, the U. S. Forest Service, and the Alaska Department of Fish and Game agreed on a proposed plan for the general design and operation of an improved pink salmon spawning channel at the Olsen Bay research station at Prince William Sound. The channel will be in two sections--one in the intertidal area and the other above high tide. It will be the first salmon spawning channel on the Pacific coast to be located in an intertidal area. In the Prince William Sound area, most pink salmon spawn naturally in intertidal reaches of streams.

Olsen Creek produces large but fluctuating runs of pink salmon. The Channel will offer an excellent opportunity to develop methods of obtaining more consistent production through control of the spawning environment. Techniques for controlling the wide natural fluctuations in pink salmon production may be of importance to future salmon management.

The Forest Service will assume a major role in the venture by doing topographical

surveys and installing the channels. The Auke Bay Laboratory staff will operate the spawning facilities and evaluate the results.

* * * * *

WINTER PINK AND CHUM SALMON EGG SURVIVALS ENCOURAGING:

Crews sampled salmon eggs from study areas in a pink salmon stream near Cordova and a chum salmon stream near Ketchikan. Preliminary results indicated that the egg survival of both species will probably prove to be better than average.

Alaska Fisheries Exploration and Gear Research

SHRIMP AND SCALLOP STUDIES PLANNED:

Shrimp explorations planned by the U. S. Bureau of Commercial Fisheries Exploratory Fishing and Gear Research Base at Juneau will include about 11 weeks of trawling in southern Cook Inlet near Kodiak Island. The primary emphasis of the scheduled 1963 shrimp explorations will be to supplement and extend the work previously done in Cook Inlet. Preliminary scallop dredging to determine the feasibility of more intensive work is also planned.

California

NEW DIRECTOR APPOINTED FOR INSTITUTE OF MARINE RESOURCES:

Dr. Milner B. Schaefer was recently appointed Director of the University of California's Institute of Marine Resources. He was formerly the Director of Investigations for the Inter-American Tropical Tuna Association, La Jolla, Calif. Announcing the appointment, the President of the University of California said, "With the appointment of Dr. Schaefer, one of the country's leading fisheries biologists, we hope to strengthen the Institute's Program. Among critical programs that need to be explored in a broadened program are the socio-economic ones that handicap effective use of fisheries and marine resources."

Some of the studies now being carried out by the Institute are: (1) consideration of the potential resources of the sea in relation to needs of an increased population; (2) research on the productivity, ecology and population dynamics of living resources; (3) the composition of fishes, especially the nature of proteins and unsaturated fatty acids; and (4) studies of the topography of the deep-sea floor and research on beach erosion formation and other inshore geological processes. (Undersea Technology, January 1963; U. S. National Oceanographic Data Center, Newsletter, March 31, 1963.)

Cans--Shipments for Fishery Products, January-February 1963

A total of 354,448 base boxes of steel and aluminum was consumed to make cans shipped to fish and shellfish canning plants in January-February 1963, a decline of 2.2 percent from the 362,242 base boxes used during the same period in 1962.

Note: Statistics cover all commercial and captive plants known to be producing metal cans. A "base box" is an area 31,360 square inches, equivalent to 112 sheets 14" x 20" size. Tonnage figures for steel (tinplate) cans are derived by use of the factor 21.8 base boxes per short ton of steel. The use of aluminum cans for packing fishery products is small.

Central Pacific Fisheries Investigations

PREDICTIONS ON ABUNDANCE OF SUMMER SKIPJACK TUNA IN HAWAIIAN WATERS:

Studies by the Honolulu Biological Laboratory of the U. S. Bureau of Commercial Fisheries on skipjack tuna and its environment have demonstrated there is empirical relationship between the relative abundance of skipjack in Hawaiian waters and oceanographic conditions. This relationship has enabled the scientists to predict to Hawaiian fishermen the availability of skipjack several months in advance of the season. These predictions have been made with a high degree of success since 1959. The forecast

of availability is based on monthly sea surface temperatures which are recorded from the Koko Head monitoring station on the Island of Oahu. In January, the sea surface temperature in the vicinity of Oahu is about 74° F. Near the end of the summer the temperature may approach 79° F. and then drops to 74° F. again by the end of the year. From this cyclical change in temperature, a curve of the rate of sea-surface temperature change at Koko Head is derived. This rate-of-change curve shows that the sea surface temperature changes from a cooling phase to a warming phase in February or March. The relative abundance of skipjack in Hawaiian waters during the summer fishing season is related to the time of temperature-rate change from the warming phase to the cooling phase. Highest yields of skipjack are obtained when the onset of sea-surface warming occurs in early February. Yields decline as the time of warming progresses toward March, and the lowest yields are expected when the time of warming occurs in the middle of March. Warming in 1963 occurred in early February. This resulted in a prediction to the industry that the skipjack fishery will be above average this coming summer.

Although it is now a simple matter to predict the relative abundance of skipjack for each summer several months in advance of the season, the biologists still do not have a complete understanding of the mechanisms involved. It appears that skipjack schools move into the Hawaiian area with a seasonal northward movement of the California Current Extension water. The skipjack which appear in the Hawaiian summer are of unusually large size (about 22 pounds). Skipjack of that size are not common in the other major Pacific fisheries. The scientists claim that these large skipjack belong to a different subpopulation than the smaller skipjack which are found throughout the year in the Hawaiian area. At present the Laboratory is endeavoring to discover why the prediction works. In order to do this, a more detailed understanding of the subpopulation structure of the skipjack is needed, plus the various environmental variables which influence the skipjack's movements, availability, and abundance. As a more complete knowledge of skipjack biology is attained it will become possible to relate the Laboratory's observations in the Hawaiian area to the skipjack exploited in other parts of the Pacific. It is possible that the skipjack which support the Hawaiian fishery are also being exploited in some other fishery or could be exploited in some potential fishery. Investigations of the phenomena related to the predictions have led to several interesting hypotheses. One of these hypotheses concerns the fact the immuogenetic studies have demonstrated that there are at least two subpopulations that enter the Hawaiian fishery. It is hypothesized that the large "season fish" which enter the Hawaiian fishery in the summer belong to one of those subpopulations. The biologists speculate that the increase in catch that occurs during the summer may be due to an increase in availability of the skipjack. It is hypothesized that this increase in availability is associated with the angle of inflection of oceanic currents that pass by the Islands--angles of high inflection produce a turbulent condition which increases the density of skipjack forage at the surface. Increased surface forage results in higher densities of skipjack near the surface and this establishes the possibility of higher yields to the fishermen in years when this combination of conditions prevails. As a fuller understanding of these phenomena is obtained, a store of knowledge is being acquired which will enable the biologists to understand the fluctuations and vagaries of skipjack populations on a Pacific-wide basis.

Federal Purchases of Fishery Products

DEPARTMENT OF DEFENSE PURCHASES, JANUARY 1963:

Fresh and Frozen: For the use of the Armed Forces under the Department of Defense, more fresh and frozen fishery products were purchased in January 1963 by the Defense Subsistence Supply Centers than in December 1961. The increase was 51.4 percent in quantity and 84.7 percent in value.

Compared with the same month a year earlier, purchases in January 1963 were up 19.3 percent in quantity and 55.2 percent in value. The greater increase in value was due mainly to heavy buying of higher-priced fishery products such as shrimp and oysters in January 1963. Prices paid for fresh and frozen fishery products by the Department of Defense in January 1963 averaged 74.0 cents

Table 1 - Fresh and Frozen Fishery Products Purchased by Defense Subsistence Supply Centers, January 1963 with Comparisons

QUANTITY		VALUE	
January		January	
1963	1962	1963	1962
(1,000 Lbs.)		($1,000)	
2,089	1,751	1,546	996

a pound, about 17.1 cents a pound more than was paid in January 1962.

Canned: Canned sardines was the principal canned fishery product purchased for the use of the Armed Forces in January 1963.

Table 2 - Canned Fishery Products Purchased by Defense Subsistence Supply Centers, January 1963 with Comparisons

Product	QUANTITY January		VALUE January	
	1963	1962	1963	1962
	(1,000 Lbs.)		($1,000)	
Tuna	-	3,113	-	1,739
Salmon	3	-	2	-
Sardine	37	3	15	2

Notes: (1) Armed Forces installations generally make some local purchases not included in the data given; actual total purchases are higher than indicated because local purchases are not obtainable.

(2) See Commercial Fisheries Review, May 1963 p. 26.

Fish Meal

CORN-COTTONSEED RATIONS FOR PIGS IMPROVED:

Recent research has demonstrated that corn-cottonseed rations for pigs can be improved by the addition of fish meal to the mixture. When menhaden meal was substituted for a part of the protein of cottonseed meal in a corn-cottonseed ration for pigs, rate of gain, efficiency of feed utilization, and area of the loin eye were improved significantly. Fish meal was substituted for cottonseed meal so as to replace 4 percent of the protein of the latter with fish meal protein. When only 2 percent of the cottonseed protein was replaced by fish meal, the ration was improved, but results were less significant than when 4 percent of the cottonseed protein was replaced by the fish product.

The improvement of corn-cottonseed meal rations at relatively little added expense is a matter of great practical importance in some southern States where cottonseed meal is frequently the least expensive source of protein for livestock.

Cottonseed meal in its original form contains the toxic agent, gossypol, a chemical compound that can injure pigs and some other animals if present in appreciable amounts. Chemical treatment of the meal reduces free gossypol to levels that can be tolerated by pigs. However, whether or not growth is retarded by the small amount of free gossypol remaining is still open to question. In the experiments referred to, although free gossypol in the rations never exceeded 0.0075 percent--a level that would not ordinarily be expected to inhibit growth--the fact that performance was improved by the presence of fish meal possibly may be attributed to an alleviation of a growth-inhibiting effect of gossypol. Another possible explanation of the beneficial effect of fish meal is that the lysine (an indispensable amino acid) in the fish meal may have improved the amino acid balance of the ration.

From a practical point of view, the experiments demonstrate that some corn-cottonseed meal rations can be improved significantly by the addition to the ration of small amounts of fish meal. The experiments were reported at the Maryland Nutrition Conference, Washington, D.C., March 14-15, 1963, by Professor E. P. Young, University of Maryland and R. R. Kifer, U.S. Bureau of Commercial Fisheries, College Park, Maryland.

Fish Oils

MONO- AND DI-NITRATES DERIVATIVES MAY HAVE INDUSTRIAL USES:

The chemistry of organic nitrates, historically associated with the preparation of explosives, is becoming increasingly important. In contrast to the explosive character of polynitrate esters, such as nitroglycerin and nitrocellulose, mono- and di-nitrates prepared at the Seattle Technological Laboratory of the U. S. Bureau of Commercial Fisheries have been found to be highly stable at elevated temperatures. These nitrates have been prepared from various fish oil fatty acid methyl esters and their derivatives.

These mono- and di-nitrates may show promise as oil and grease additives, as intermediates in the preparation of surfactants and germicides, and for controlling the flash-point of fuels, because of their stability and reactivity under certain conditions.

Fur Seals

PRICES FOR ALASKA SKINS AT SPRING 1963 AUCTION SET ANOTHER RECORD:

The spring auction in 1963 (April 25-26) of United States Government-owned fur seal skins yielded close to $2.95 million. The average price per skin received for male fur seal skins (Black, Kitovi, and Matara) was $122.52 a new record price. This average price compared with an average of $107.53 paid at the fall 1962 auction, and was also much higher than the $106.42 average for skins sold in the spring 1962 auction. However, the average price received for Lakoda or female sheared seal skins was $43.09 or much lower than the average of $48.40 received at the fall 1962 auction and slightly lower than the average of $44.33 received at the spring 1962 auction.

Average prices per skin received for processed male fur seal skins at the spring 1963 auction were (average for fall auction in parentheses): Black, $125.87 ($115.99); Kitovi,

$116.81 ($105.81); Matara, $121.01 ($99.04). Prices received at the spring 1963 auction for Japanese-owned fur seal skins as compared with the fall 1962 auction were: Black, $130.29 ($121.41); Kitovi, $116.62 ($98.10); Matara, $123.44 ($100.75). Prices for South African fur seal skins at the spring 1963 auction were: Black, $73.97; Deep Blue, $62.28; and Neutral, $72.20.

Fur seal skins sold in the April 1963 auction amounted to 21,694 conventionally processed male skins and 6,676 Lakoda or sheared female skins.

Note: See Commercial Fisheries Review, January 1963 p. 28 and July 1962 p. 19.

Great Lakes

PUBLIC HEARING ON RESULTS OF STUDIES IN LAKE SUPERIOR:

The results of studies in Lake Superior since its waters were closed to commercial lake trout fishing in June 1962 were discussed at a public hearing in Houghton, Mich., on May 21, 1963, which was scheduled by the Michigan State Conservation Department.

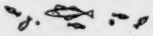
The latest findings on lamprey predation, lake trout stocks and their natural reproduction, and other developments in Lake Superior were outlined by representatives of the Michigan Conservation Department, the U. S. Bureau of Commercial Fisheries, and the Great Lakes Fishery Commission.

Groundfish

FORECAST OF ABUNDANCE ON NEW ENGLAND FISHING BANKS IN 1963:

There will not be too much change in the abundance of groundfish on New England fishing banks during 1963, according to a forecast issued by the Atlantic States Marine Fisheries Commission. The Commission predicts that the cod supply will be at least as good as in each of the previous two years. Haddock abundance on Georges Bank may decline toward the end of 1963. There are indications that both the 1960 and 1961 haddock year-classes are not as strong as the 1958 age group.

The Commission states that no significant change was expected in ocean perch abundance from the previous two years. In the whiting fishery, a large supply of 1961 yearling fish should enter the fishery in 1963. This should provide a supply equal to or greater than that in 1961.



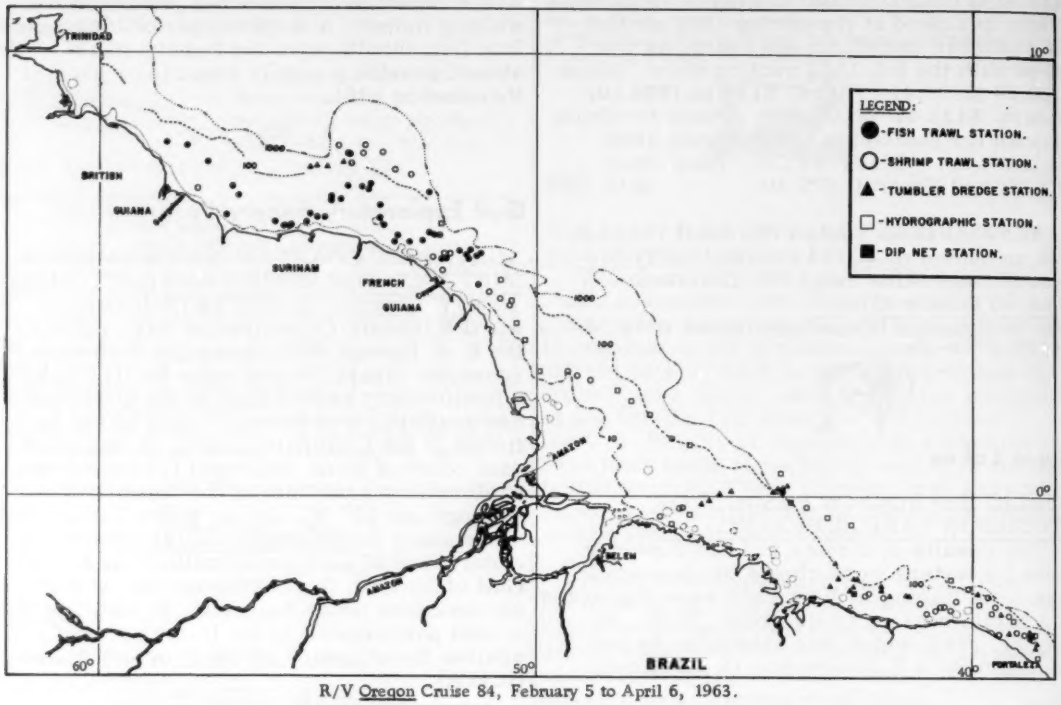
Gulf Exploratory Fishery Program

NORTHEAST COAST OF SOUTH AMERICA SURVEYED FOR SHRIMP AND BOTTOMFISH:

M/V "Oregon" Cruise 84 (February 5-April 6, 1963): Objectives of this cruise by the U. S. Bureau of Commercial Fisheries research vessel Oregon were to: (1) make a preliminary assessment of the distribution and availability to bottom trawls of the food fishes of the Continental Shelf off the northeast coast of South America; (2) extend shrimp explorations southeast of the Amazon River to longitude 40° W., and on to the Continental Slope along the Guianas; and (3) observe the occurrence of surface schooling tunas in the Gulf of Mexico, the Caribbean Sea, and off northeastern South America. In addition, the vessel participated in the International Cooperative Investigation of the Tropical Atlantic (ICITA).

During the first half of the cruise (February 5-March 2), spring season exploratory coverage was obtained of the shrimp resource on the shelf off the Guianas using 2-inch stretched-mesh trawls. Previous explorations in the area (Cruise Nos. 47 and 53) had been made in the fall of 1962. Two areas of commercial pink and brown shrimp potential were located--one off Devils Island, French Guiana, and one off Cabo Orange on the French Guiana-Brazil border. Neither area had been fished by the growing fleet of United States shrimp vessels operating out of Guiana ports. Reports of catches, which ranged from 30 to 70 pounds of 15-count per pound headless shrimp per hour drag, were relayed to the fishing fleet by radio.

Groundfish operations with roller trawls on rough and broken bottom were precluded by the heavy seas created by the spring trade-winds and the exposed nature of the area. Smoother bottom, well suited to trawling, appears to prevail generally inside 60 fathoms, and 49 fish-trawl drags completed on this bottom took small lane snapper (Lutjanus synagris) in amounts ranging from 5 to 20 pounds per hour. Between 40 and 60 fathoms, small red and vermilion snapper (Lutjanus



R/V Oregon Cruise 84, February 5 to April 6, 1963.

aya and Rhomboplites aureorubens) were also taken in small numbers. The broken bottom areas immediately adjacent to the 40-60 fathom interval on the shelf edge appears to be promising for roller-rigged trawl fishing in summer and fall when sea conditions are better. Those areas have supported snapper handline fisheries in the past.

Largest fish catches between Georgetown, British Guiana, and Cayenne, French Guiana, were confined to waters shallower than 20 fathoms, where drags with a 65-foot high-opening roller-rigged fish trawl, yielded from 800 to 1,500 pounds of fish per hour. Predominant in the catches were large sea trouts (Cynoscion sp.) and croakers (Micropogon sp.), grounts (Haemulon sp.), and several species of catfishes. Seabobs (Xiphopeneus kroyeri), occurred in those catches in amounts ranging from 150 to 300 pounds per hour, and were concentrated out to depths of 35 fathoms between Cayenne and Cabo Orange.

The high resolution white-line fish finder was monitored constantly but only one large midwater fish school was observed, northeast of Cayenne. Sampling showed that school to be composed of juvenile anchovies and thread herring.

Emphasis during the second half of the cruise was on exploring the shelf south of the Amazon River mouth. Between the Amazon and Fortaleza, Brazil, 35 shrimp trawl and 33 dredge hauls were made, generally in depths of 10-40 fathoms. Beyond the 40-fathom curve a steep escarpment falls directly to 1,000 or more fathoms. Catches of shrimp were small, and both brown and white shrimp were present in half of the drags made inside 25 fathoms. East of Parnaiba, drags made on shell bottom caught from 1 to 4 spiny lobsters, and one drag yielded 49 lobsters. Since part of the exploratory fishing activity was conducted adjacent to the recently controversial Brazilian lobster grounds, a Brazilian Naval Officer was assigned to the Oregon for liaison and as official observer.

Nine drags were made in 300-500 fathoms off French Guiana and Surinam where previous Oregon surveys had resulted in small catches of the scarlet shrimp Plesiopenaeus

edwardsianus. Heavy seas prevented adequate fishing trials. Catches ranged from 15 to 20 pounds of the shrimp per hour. The largest haul produced 80 pounds of 3-10 count (per pound heads-on) scarlet shrimp in a 4-hour drag with a 40-foot flat trawl. These results indicate that a combination of the use of high-opening trawls and intensive exploratory fishing in that area may prove the existence of commercially valuable concentrations. This species is being fished commercially off Spain and marketed in the eastern United States. Of particular interest in trawling at these depths was the capture of from one to nine Atlantic king crabs (Lithodes sp.) ranging in size from juveniles to 8-10 pounds each.

Forty plankton tows, 69 bathythermograph casts, 104 sea surface radiation temperature observations, and 13 water samples (sediment transport) from the Amazon drainage were obtained throughout the cruise as participants from the University of Miami Laboratory conducted selective faunal sampling during both sections of the cruise for the ICITA project.

Port calls were made at Port of Spain, Trinidad; Cayenne, French Guiana; Belem, Brazil; Fortaleza, Brazil; and Georgetown, British Guiana. Talks with United States shrimp producers and fishermen at many of these ports reveal that there are from 40 to 50 United States shrimp trawlers working out of Georgetown and indicate that the fleet now working the Guiana shrimp grounds ranges from 100 to 150 vessels.

Gulf Fishery Investigations

Some of the highlights of studies conducted by the Galveston Biological Laboratory of the U. S. Bureau of Commercial Fisheries during January-March 1963:

SHRIMP FISHERY PROGRAM: Shrimp Spawning Populations: Ovary studies were made on brown shrimp taken from an area between Freeport, Tex., and Cameron, La., during July-December 1962. The shrimp were taken at 15 and 25 fathoms. Females in a spawning or recently-spent condition averaged 20-25 percent of the total sample from both depth zones. In general, the ovary conditions noted in brown shrimp in the same area during 1961 agree with the observations of ovary conditions made in 1962.

Shrimp Larval Studies: A total of 150 plankton samples collected in August, September, and October 1962 were examined for penaeid larvae. The relative abundance of larvae in all statistical areas was greater than at any pervious period in 1962. This was thought to be a general indication of increased spawning activity. Larval abundance was consistently greater in statistical areas 17-21 than in areas 13-16, with the exception of area 13 in August. Most larvae were taken at the 25-fathom stations, although the increase in abundance was noted at all depth zones.

The larvae caught during the period primarily represented non-commercial species (Trachypeneus, Sicyonia, Solenocera, and Parapenaeus). Penaeus larvae, although comparatively fewer in number, also exhibited greater abundance than in the preceding seasons.

Shrimp Postlarval Studies: Additional monitoring stations for the collection of postlarval shrimp were established during the quarter. Samples are now obtained routinely with standard collecting gear at Port Isabel, Aransas Pass, and Sabine Pass (Tex.); Caminada Pass (La.): Bay St. Louis (Miss.); and Mullet Key, Tampa Bay, (Fla.). The postlarval monitoring stations will provide data that will be used to assess the reliability of derived measures of postlarval abundance which show promise in forecasting shrimp-fishing conditions along the northern Gulf coast.

Bait Shrimp Fishery: The estimated commercial bait shrimp catch in Galveston Bay in 1962 amounted to a record 1,062,900 pounds, up 45 percent from the amount taken in 1961 for bait purposes. In the first 2 months of 1963, bait shrimp production was 76 percent greater than in the same period of the previous

STAINED
SHRIMP
50¢ REWARD
Shrimp have been marked with blue, green and red biological stains — in order to obtain information on migrations and growth. The color appears only on both sides of the head (in the gills) as shown in the illustration.
Look for color here
A reward of 50¢ will be paid for stained shrimp when returned with the following information:
1. Exact place the shrimp was caught.
2. Date the shrimp was caught.
NOTIFY BY MAIL THE U.S. FISH AND WILDLIFE SERVICE, BIOLOGICAL LABORATORY, P.O. BOX 3098, GALVESTON, TEXAS, OR CONTACT ANY FISH AND WILDLIFE SERVICE AGENT OR REPRESENTATIVE.
Stained shrimp must be verified by Fish and Wildlife Service biologist before payment. The stains used are approved for this use by the Food and Drug Administration.

Fig. 1 - Reward poster for return of stained shrimp.

year. Bait shrimp fishing slowed considerably in February 1963 due to unusually cold weather. Incomplete reports indicated that juvenile white shrimp were taken in considerable quantities in March 1963.

Migrations, Growth, and Mortality of Brown and White Shrimp: Of the 2,431 stained and 1,690 tagged brown shrimp released off the Texas coast in April 1962, 153 (6.3 percent) stained and 87 (5.2 percent) tagged individuals had been recovered by the end of the first quarter of 1963. Three stained shrimp were recaptured that had been at liberty more than $8\frac{1}{2}$ months. The returns indicated that the adult brown shrimp under study did not move great distances. Their movement was random, and they comprised a single population.

Two mark-recapture experiments with white shrimp started during September 1962 involve 1,905 stained shrimp released west of Vermilion Bay, La., and 2,291 stained shrimp released off Cameron, La.

As of mid-March 1963, 200 (9 percent) of the marked shrimp from the Cameron study had been recovered, and 75 (4 percent) had been returned from the Vermilion Bay experiment. For the period indicated, it appears that movement of the species was restricted, and only one population was involved. Weight-at-age data suggest that white shrimp during the fall increase in size from 120 millimeters (50-count) to about 135 millimeters (35-count) in 2 weeks, and to 160 millimeters (20-count) in 8 weeks.

Several groups of shrimp were stained first with a fast green dye to provide a primary mark, and then treated with various fluorescent pigments to determine the longevity of the materials as secondary marks. After 100 days, the fluorescent marks were as vivid as when they were first injected into the shrimp. Initial mortality occurred within 24 hours after marking and was attributed to handling and not to any effects of the fluorescent material. Omitting the initial mortality, it appears that the fluorescent pigments have no long-term adverse effect on survival.

Migrations, Growth, and Mortality of Pink Shrimp: In August and September 1962, a total of 19,860 small pink shrimp were stained and released at Indian Key, Fla., which lies about midway between the Sanibel and Tortugas fishing grounds. By the end of the first quarter of 1963, a total of 36 representatives of that group had been returned--26 were recovered on the Sanibel grounds and 10 on the Tortugas grounds. The distribution of recoveries suggests that the shrimp on both fishing grounds represent the same population. Shrimp which occupy the interlying area are not accessible because of untrawlable bottom.

About 33 percent of the 2,350 marked pink shrimp released on the Tortugas grounds in December 1962 had been recovered by the end of March 1963. Preliminary analysis of recovery and associated effort data for the first 7 weeks of the experiment indicates that the monthly rate of fishing mortality was about 29 percent and the monthly loss from all other causes was roughly 48 percent. In an effort to determine the proportion of marked shrimp that might have been overlooked during processing ashore, stained shrimp were planted in selected landings at various packing houses. The shrimp were given an inconspicuous secondary mark for identification purposes. On the average, 25 percent of the planted shrimp were not detected.

Growth per month from an initial length of 133 millimeters was estimated at $4\frac{1}{2}$ millimeters for males and females combined. The movement of the marked shrimp was generally eastward into deeper water.

Fig. 2 - Shrimp being stained as part of the investigations on shrimp migrations.

Population Dynamics: Commercial fishery statistics were analyzed in order to extend previous statistical studies carried out in 1956-1959 on shrimp densities in the Gulf. It is anticipated that continuous records of this type, summarized at frequent intervals, will provide further insight into relationships between shrimp abundance and major oceanographic events and fishing practices.

Preparations were made for mesh-selection studies designed to provide comparative information on the fishing characteristics of variously constructed (commercial-type) trawling gear, when such gear is viewed from the standpoint of the efficiency with which it samples shrimp populations.

Commercial Catch Sampling: During the first quarter of 1963, agents stationed at Brownsville, Aransas Pass, and Galveston (Tex.); Morgan City and Houma (La.); Pascagoula (Miss.); and St. Petersburg (Fla.), examined 36,600 shrimp samples from the catches of 266 vessels to determine the species, sex, and size composition of commercial shrimp landings.

On the basis of those samples and without regard to differences between areas and species, 70 percent of the total fishing effort was expended, and 72 percent of the vessel catch was made during the hours of darkness. The catch of shrimp per hour's fishing averaged 21 pounds during the day and 23 pounds at night. About 81 percent of the night fishing was for brown and pink shrimp, usually in waters deeper than 10 fathoms. Thirty-five percent of the catch was taken from depths of 10 fathoms or less, 18 percent from 10-20 fathoms, and 46 percent from waters deeper than 20 fathoms.

ESTUARINE PROGRAM: Ecology of Western Gulf Estuaries: At the beginning of the quarter, a revised scheme of sampling the Galveston Bay estuarine system was initiated. The system is now divided into 9 subareas, each characterized by 2 to 5 habitat types. Sixty-five separate locations are sampled semimonthly for hydrological data and biological material (table 1). Sup-

plementary data are provided from an additional 36 stations established by the U. S. Corps of Engineers

Table 1 - Galveston Bay Estuarine System--Subareas and Habitat Types

Subarea	No. of Stations	Habitat Type				
		Channel	Open Water	Shore-line	Bayou	Special
Gulf of Mexico	2	1/1	1	-	-	-
Tidal Pass	4	1/2	2	-	-	-
Lower Galveston Bay	14	1/2	4	4	2	2/2
Upper Galveston Bay	10	1/2	4	2	2	-
Mouth of San Jacinto River	5	1/1	2	2	-	-
Trinity Bay	14	1	5	6	2	-
East Bay	14	1	4	6	2	2/1
Intracoastal Waterway	2	2	-	-	-	-
System Total	65	12	22	20	8	3

1/Houston Ship Channel.
2/Stations at which only hydrological measurements are being taken.

Biological populations being sampled for density (or abundance) measurements include those of various fishes, crustaceans (particularly shrimp and crabs), and certain molluscs. All life history stages, larvae through adult, are receiving attention. Observations or measurements of hydrological factors include those of water temperature, salinity, turbidity, water circulation and elevation, tidal stage, and bottom composition. In addition, detailed analyses of water quality at sampling locations will be conducted by the Texas Water Pollution Control Board.

Both hydrological and biological data are being tabulated for each station and then combined for analysis of conditions within specific subareas and habitat types, or any combination of subareas and habitat types, on the basis of 2-week, 2-month, 3-month, seasonal, and annual increments of time.

Preliminary analysis of hydrological data for the first quarter of 1963 has been completed. Table 2 illustrates the temperature and salinity gradients between

Table 2 - Bottom Temperature and Salinity Values Between the Gulf of Mexico and Trinity Bay, January-March 1963 1/

Subarea	No. of Stations	Salinity (‰)			Temperature (°C.)		
		Avg.	Min.	Max.	Avg.	Min.	Max.
Gulf of Mexico	2	31.6	29.1	34.2	12.6	8.7	18.5
Tidal Pass	4	26.5	18.4	31.9	13.0	9.6	20.5
Lower Galveston Bay	14	21.1	13.3	28.0	12.5	0.4	23.9
Upper Galveston Bay	10	15.8	9.8	20.1	12.1	3.2	21.1
Mouth of San Jacinto River	5	14.8	8.8	19.3	13.3	5.7	21.3
Trinity Bay	14	9.9	0.4	16.6	11.7	3.6	19.2

1/Preliminary.

the Gulf of Mexico and Trinity Bay. The salinity gradient held for both minimum and maximum salinity conditions. As expected, the greatest variation occurred in Trinity Bay, nearest the source of fresh water, and lower Galveston Bay, nearest the source of salt water.

Considerable temperature variation occurred throughout the system. Extremely low water temperatures were recorded in both January and February when values as low as 0.4° C. were obtained in the open, shallow waters of lower Galveston Bay. During the same period, the bottom temperature in the deeper water of the Houston Ship Channel reached a low of 6.6° C. Due to their short duration, the low temperature levels did not cause any extensive fish kills in the Galveston Bay system. Most species of fish and crustaceans were temporarily stunned, however, and readily captured by sampling gear.

Preliminary analysis of the first quarter's hydrological data indicates that the Houston Ship Channel effectively separates the east and west portions of lower and upper Galveston Bay, as well as the area at the mouth of the San Jacinto River. Salinity differences of as much as 7‰ occurred in open bay water adjacent to either side of the channel. Treatment and analysis of both hydrological and biological data will necessarily take into account this artificial division.

Effects of Engineering Projects: During the quarter, 57 appraisals were made of engineering and mineral development projects potentially affecting fishery resources in Texas coastal waters. The majority resulted from the 104 Corps of Engineers public notices and letters received during the quarter. As directed by the present system of coordination, the results of the appraisals were sent to the Branch of River Basin Studies, U. S. Fish and Wildlife Service, and the Texas Game and Fish Commission. Sections pertaining to coastal fishery resources in 21 U. S. Bureau of Sport Fisheries and Wildlife draft reports on water development projects were received for review.

Most of the Corps of Engineers public notices dealt with Department of the Army private permits for mineral development, channel dredging or bulkheading, and filling. Such projects frequently require modification to minimize possible damage to the estuarine environment and its dependent fishery resources. When this is the case, recommendations for corrective action are sent to the Branch of River Basin Studies, which in turn requests the Corps of Engineers to require the applicant to modify the original plans. When oyster leases or extremely valuable estuarine habitat may be involved, the Corps is requested to have the applicant obtain approval from the Texas Game and Fish Commission before initiating the proposed project.

Considerable attention was given to two projects which may have extremely adverse effects upon the estuarine environment. They are the Matagorda Bay Ship Channel and Texas Basins Projects.

The Matagorda Ship Channel Project, now under way, provides for the enlargement and partial relocation of the channel itself. Model tests indicate a possible increase in bay salinity due to the greater size of the channel and the planned distribution of spoil in the lower bay. Should the salinity increase be unacceptable, remedial action would be required. Possible solutions are being studied.

The Texas Basins Project includes a proposal for numerous upland reservoirs and a water transport canal to divert the flow from major streams in east Texas to west Texas. Such a project would reduce the tributary inflow into most Texas estuarine systems. During drought years, this reduction could be critical, particularly in view of other water demands which are expected in the future. Thus, the Texas Basins Project would compound an already critical problem. The review of the project disclosed the need to establish preliminary average and minimum flow requirements for all major estuarine systems in the State, except Laguna Madre which the project would not affect.

INDUSTRIAL FISHERY PROGRAM: Commercial Catch Sampling: Excluding menhaden, the industrial fish catch in 1962 rose 27 percent to a record of nearly 50,000 tons. Approximately 875 more fishing trips in 1962 than in the previous year accounted for the larger

catch. The catch per fishing hour in 1962 approached 0.6 tons which was almost the same as in 1961. The Atlantic croaker continued to constitute roughly 58 percent of the total catch. Spot accounted for 9 percent of the catch in 1962; the sand seatrout, 6 percent, and the Atlantic cutlassfish, 5 percent.

A gross analysis of four years of industrial fishery catch and effort statistics was completed. The data revealed that the relative abundance of each of the major species (using the catch per hour as an index) remained about the same, whereas fishing effort increased measurably. Continued surveillance of the fishery will reveal whether or not the increasing fishing intensity has begun to adversely affect the resource potential.

Commercial landings continued to be sampled for biological material which is needed to complete life history studies on the major species, particularly the Atlantic croaker, supporting the industrial bottomfish fishery.

Distribution and Abundance of Western Gulf Bottomfishes: Quantitative and qualitative processing of fish samples collected on survey cruises conducted under the Shrimp Fishery Program during 1962 was resumed.

Table 3 - Finfish Catch per Unit of Effort During Survey Cruises - 1962

Area and Depth (fms.)	Catch in Pounds per Hour of Fishing[1/]				
	Jan.-Mar.	Apr.-June	July-Sept.	Oct.-Dec.	Year 1962
Off Texas (San Luis Pass to Brazos Santiago):					
7½	20	60	100	95	70
15	50	25	40	135	65
25	105	70	85	165	110
35	75	95	70	150	100
45	110	90	80	145	110
60	105	75	65	105	90
Off Louisiana (Calcasieu Pass to Southwest Pass):					
7½	190	270	585	[2/]670	385
15	275	190	380	415	305
25	250	135	175	320	220
35	155	120	170	250	170
45	160	80	120	135	130
60	105	95	70	50	80

1/Trawling with 45-foot (flat), 2-inch mesh trawl with rollers.
2/Less than 10 hours' effort.

A preliminary analysis of the total catch (all species combined) shows that in waters of less than 40 fathoms, there was a much higher average catch of bottomfish off Louisiana than off Texas (table 3). The catch per unit of effort in the shallowest waters sampled (7½ fathoms) was more than five times greater off Louisiana.

At the start of 1963, the sample collecting methods were revised to improve the preservation of sample material and to increase the size of each sample. Many fish specimens are being retained for a reference collection and display.

BEHAVIOR PROGRAM: Tolerances: Completion of 4 constant-temperature rooms and acquisition of additional laboratory space permitted the first large-scale study of the combined influence of salinity and temperature on the survival of postlarval shrimp. Seven levels of temperature (3°, 5°, 13°, 21°, 30°, 35°, and 43° C.) and eight levels of salinity (2‰, 5‰, 10‰, 18‰, 25‰, 35‰, 40‰, and 45‰) were tested in the 56 possible combinations. Each 2-factor combination was evaluated in terms of the survival of 30 postlarvae (probably Penaeus aztecus) exposed to the experimental condition for 24 hours. Each of the 1,680 experimental shrimp was enclosed in a small cage which prevented the specimen from jumping out of the water or becoming a victim of cannibalism. The shrimp were introduced directly into the experimental salinity-temperature conditions without prior acclimation.

The results of the study, which demonstrated no survival at 3° or 43° C. regardless of salinity, support and extend the evidence from previous work. The over-all range of salinity-temperature conditions in which 100 percent survival was obtained proved somewhat narrower than that observed in past studies. Since the earlier work involved acclimation periods of about eight hours during which the experimental subjects were gradually brought from holding-tank conditions to the levels to be tested, the difference between the previous and present results may be due to the influence of acclimation.

Preliminary observations indicate that the Atlantic croaker (Micropogon undulatus) can be studied successfully in a vertical salinity gradient. After a few minutes of active efforts to escape the equipment, the fish become much quieter and exhibits a very definite zone of preference. This work will be continued.

Growth and Metabolism: An experiment testing the effects of both temperature and salinity on the growth of postlarval shrimp was begun. Five levels of salinity (2‰, 5‰, 15‰, 25‰, and 35‰) are being tested at each of four levels of temperature (11°, 18°, 25°, and 32° C.). Each experiment starts with 100 postlarvae.

During the quarter, results with postlarvae tentatively identified as Penaeus aztecus showed that at the highest temperature level (32° C. or 89.6° F.), mortality during adjustment of the test medium began when the salinity level reached 15‰ and continued as the level was further reduced to 5‰ and 2‰. Mortality after 5 days was 15 percent at 15‰, 25 percent at 5‰, and 45 percent at 2‰.

At the lowest test temperature level (11° C. or 51.8° F.), no mortality occurred until the salinity reached 2‰. But at that point, 75 percent of the specimens died within the first 24-hour period, while an additional 20 percent died with the second 24-hour period. In a 5‰ medium at the same temperature, a mortality of only 5 percent was observed during the same 48-hour period. The effect of low salinity was evident even at 18° C. (64.4° F.), at which 15 percent of the specimens died during the 48 hours following adjustment to 2‰.

The data indicate that high salinity levels (within the range of those tested) are better tolerated by postlarval shrimp at all temperatures than are very low salinity levels.

Marked differences in growth and food intake were noticeable even after 5 days. Specimens at intermediate salinity levels (5‰ -25‰) and 32° C. had doubled their weight, whereas those at the extreme salinity levels (2‰ and 35‰), and all animals at 25° C. (77.0° F.), had increased their weight by 60-70 percent. Specimens tested at 18° C., however, had weight gains averaging only 30 percent, and those at 11° C., only 10 percent. The rate of growth is a direct reflection of the amount of food consumed. Specimens at 32° C. ingested 10

times the quantity of food taken by those at 11° C., and 4 times that consumed by specimens tested at 18° C.

SPECIAL REPORTS: Chemistry and Sea-Water Laboratory Services: Considerable time was spent testing the two N-ethyl carbazole methods for determining carbohydrate levels. The results of preliminary tests indicated that the older of the two methods gives considerably higher results. The difference between the methods, which is on the order of several magnitudes, might be the factor responsible for the conflicting conclusions of investigators who have attempted to correlate carbohydrate concentrations with various biological activities.

Additional work was done on the ammonia stabilization experiments which were started in 1962. Thus far, indications are that the ammonia content in samples of marine and estuarine water can be stabilized for many months by refrigeration.

Preliminary investigation of two methods of determining nitrite concentration indicated a serious lack of agreement. This disagreement, together with the divergent carbohydrate techniques mentioned above, suggests the possibility that some methods of seawater analysis are not necessarily applicable when assaying samples from coastal or estuarine environments.

Control of Harmful Organisms: This project involves the development of chemical methods for the control of the red-tide organism, Gymnodinium breve. The study was expanded by adding a phase which entails evaluating the effects of the seven most selectively toxic chemicals on test cultures in Florida coastal water. Samples of Florida water from areas frequented by the red tide organism were received, and testing was scheduled to begin as soon as suitable cultures could be established.

CONTRACT RESEARCH: Life History of Late Postlarval and Juvenile Shrimp in the Everglades National Park Nursery Grounds: The special sampling net used in the Buttonwood Canal at Flamingo, Fla., was modified, and a second net has been built to correct difficulties in the fishing operation.

Ten sampling periods were completed in January-March 1963, during which 104 samples were taken. Several relationships between shrimp abundance and variation in the environment began to appear. The mean numbers of juvenile shrimp caught on flooding currents were low compared to the numbers caught on ebbing currents. No shrimp were caught during full daylight. Temperature data, although sparse, indicated a relationship between low temperatures and large migrations out of the nursery area. The modal size of the sampled shrimp did not change greatly during the sampling period under consideration.

Abundance and Distribution of Larvae of the Pink Shrimp on the Tortugas Shelf of Florida: Three plankton collecting trips to the Tortugas shelf and eight to Buttonwood Canal near Flamingo, Fla., were made during the quarter. Pink shrimp larvae were scarce, which was to be expected during the winter season. A new device for positioning plankton nets at specified depths, the acoustical depth indicator, was successfully tested.

A report on the distribution of pink shrimp larvae in the waters of the Tortugas shelf between 1959 and 1962 was completed.

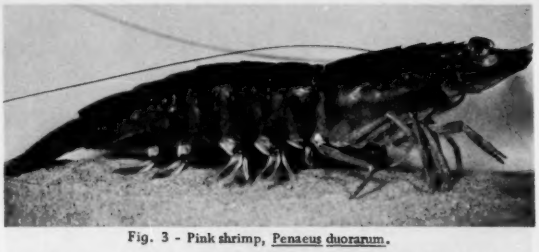


Fig. 3 - Pink shrimp, Penaeus duorarum.

Abundance of Postlarval Shrimp in Mississippi Sound and Adjacent Waters: Additional sampling stations were selected during the quarter, bring the total to 16 as of the end of February. The average sample catch of brown shrimp postlarvae gradually increased from less than 1 in January and February to nearly 6 in March. Considerable variability in numbers of postlarvae was noted between stations. Net hauls at most barrier island stations, for instance, produced no postlarvae.

Postlarval Populations of White Shrimp and Brown Shrimp with Respect to Season and Area in Vermilion Bay, La: This research was not activated until mid-February 1963. Progress was made on ordering and modifying equipment. A total of 6 of the proposed 8 sampling stations in Vermilion Bay were established. At three of those stations, samples were taken regularly. Thus far, large numbers of mysid shrimp larvae, grass shrimp, and some postlarval penaeid shrimp have been collected. The penaeids have all been identified as brown shrimp.

Seasonal Distribution Patterns of Adult and Larval Shrimp in Aransas Pass (Tex.) Inlet: This contract was awarded in early March 1963. The research will be conducted by the University of Texas Institute of Marine Science at Port Aransas, Tex.

Note: See Commercial Fisheries Review, February 1963 p. 32.

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SHRIMP DISTRIBUTION STUDIES: M/V "Gus III" Cruise GUS-3 (March 26-April 7, 1963): Catches were moderate during

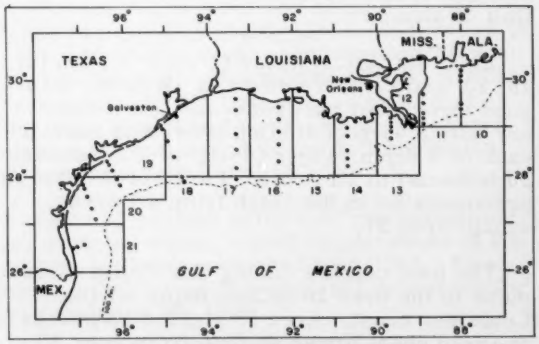

Fig. 1 - Shows the station pattern for the shrimp distribution studies in the Gulf of Mexico during 1963.

this cruise off the coast of Louisiana and Texas by the chartered vessel Gus III. The

Fig. 2 - A Gulf V plankton sampler being hauled aboard after a shrimp larvae sampling tow has been completed.

Fig. 3 - Removing the sample cup from a Gulf V plankton sampler.

vessel (operated by the Galveston Biological Laboratory of the U. S. Bureau of Commercial Fisheries) was engaged in a continuing study of the distribution of shrimp in the Gulf of Mexico.

Eight statistical areas (13, 14, 16, 17, 18, 19, 20, and 21) were covered. Weather was good throughout the cruise and one 3-hour tow with a 45-foot shrimp trawl was made in each of 3 depth ranges (0-10, 10-20, and over 20 fathoms) in all areas. Large brown shrimp predominated in the catch from all areas, except area 21.

The best catches during this cruise were made in the over 20-fathom depth off the Louisiana coast. Area 13 yielded 16 pounds of 15-20 count brown shrimp from over 20 fathoms, 9 pounds of 15-20 count white shrimp from the 10-20 fathom depth, and 3 pounds of 21-25 count white shrimp from less than 10 fathoms.

In area 14, a catch of 16 pounds of 12-15 count brown shrimp was made in over 20 fathoms, and 2 pounds of 21-25 count white shrimp were taken in the under 10-fathom depth.

The tows in area 16 yielded 9 pounds of 12-15 count brown shrimp from the over 20-fathom depth, 3 pounds of 15-20 count brown shrimp from the 10-20 fathom range, and 1 pound of 21-25 count white shrimp from the less than 10-fathom depth.

Area 17 yielded 24 pounds of 12-15 count brown shrimp from over 20 fathoms, and 3 pounds of 21-25 count white shrimp from under 10 fathoms.

Off the Texas coast, the best catch consisted of 24 pounds of 15-20 count brown shrimp from the 10-20 fathom range in area 19. The area also yielded 1 pound of 31-40 count brown shrimp and 4 pounds of 21-25

count white shrimp from the under 10-fathom depth.

In area 21 (off Brownsville, Tex.), the catch from under 10 fathoms consisted of 10 pounds of 26-30 count white shrimp and 3 pounds of 26-30 count pink shrimp. In the same area, 3 pounds of 15-20 count brown shrimp were taken in the 10-20 fathom range.

The catch was light in other areas off the Texas coast.

Notes: (1) Shrimp catches are heads-on weight; shrimp sizes are the numbers of heads-off shrimp per pound.
(2) See Commercial Fisheries Review, May 1963 p. 29.

Hawaii

FISH AND SHELLFISH LANDINGS, 1961-1962:

Commercial landings of fish and shellfish in the State of Hawaii were down 9.0 percent in quantity and 2.7 percent in value from those in 1961. The decline was due mainly to a drop in the catch of skipjack tuna which makes up the bulk of the Hawaiian landings.

The Island of Oahu was the State's leading fishery center in 1962 with a total catch of 10,144,580 pounds. The Island of Hawaii was in second place with a catch of 1,567,198 pounds, followed by the Island of Maui with a catch of 1,210,191 pounds. The remainder of the catch was landed at ports on the Islands of Lanai, Kauai, and Molokai. (Hawaiian Department of Land and Natural Resources, Honolulu, April 9, 1963.)

Hawaiian Commercial Fishery Landings and Ex-Vessel Value, 1961-1962

Species	1962		1961	
	Quantity	Value	Quantity	Value
	1,000 Lbs.	$1,000	1,000 Lbs.	$1,000
Tuna and Tunalike Fish:				
Albacore	16.7	4.0	13.6	4.1
Big-Eyed	1,220.8	598.1	1,037.4	507.6
Yellowfin	396.8	143.0	459.0	168.4
Skipjack	9,415.4	1,174.0	10,951.3	1,306.7
Bonito or little tuna	13.3	2.4	2.0	0.4
Total tuna and tunalike fish	11,063.0	1,921.5	12,463.3	1,987.2
Other fish and shellfish	2,106.7	897.8	2,008.5	909.8
Grand Total	13,169.7	2,819.3	14,471.8	2,897.0

Note: See Commercial Fisheries Review, May 1963 p. 30 and January 1963 p. 33.

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SKIPJACK TUNA LANDINGS, JANUARY-MARCH 1963:

Skipjack tuna landings in Hawaii during March 1963 were about 170,000 pounds or 110,000 pounds below the 1948-1962 average landings for the month. Individual vessel catches per trip ranged from 77 pounds to 6,681 pounds. Most of the fish taken were caught during the first 2 weeks of March.

Cannery records of weight composition showed that 11 percent of the skipjack landed during March 1963 were small, 43 percent were small-medium, 27 percent were medium, and 19 percent were large. A night-sampling program has been undertaken by the U. S. Bureau of Commercial Fisheries Biological Laboratory at Honolulu to collect length frequencies from tuna which are sold on the fresh fish market and are therefore not available for cannery measurements.

Total estimated landings of skipjack tuna in January-March 1963 amounted to 800,000 pounds, which was 40,000 pounds above the average first quarter landings during 1948-1962.

Industrial Fishery Products

U. S. PRODUCTION, 1962:

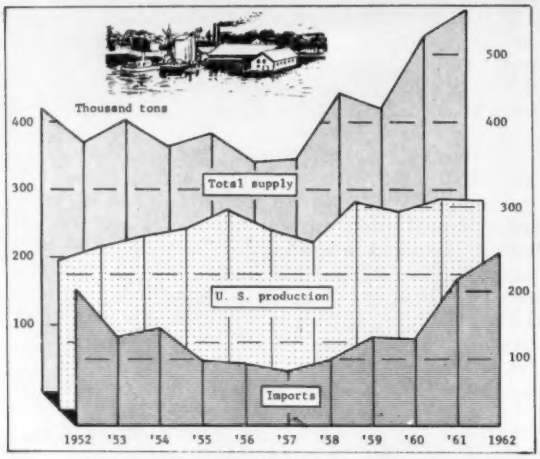
The production of industrial fishery products by 158 plants in the United States, American Samoa, and Puerto Rico in 1962 was valued at $75.4 million--an increase of $869,000 compared with 1961.

Production of meal and scrap (311,000 tons) remained at nearly the same level as in 1961. Menhaden meal accounted for 77 percent of the total. Production of meal would have exceeded the 1961 record by several thousand tons if bad weather had not caused an abrupt termination of the fall menhaden fishery in North Carolina.

Over 33 million gallons of marine animal oil were produced in 1962--a decrease of 1.4 million gallons, compared with 1961. Menhaden oil (30.7 million gallons) accounted for 93 percent of the total.

Although production of solubles and homogenized condensed fish increased from 112,000 tons in 1961, to 124,000 tons in 1962, produc-

was well below the 165,000 tons in 1959. Some solubles were incorporated into fish meal rather than being sold separately.



United States supply of fish meal, 1952-62.

Products from oyster shells and buttons from fresh-water and marine mollusk shells were valued at $8.6 million in 1962--a decrease of $805,000, compared with the previous year. Other industrial products manufactured included agar-agar, fish-feed pellets and animal feeds, glue, Irish moss extract, kelp products, liquid fertilizer, mollusk-shell lime, pearl essence, and crab shells valued at $13.4 million.

* * * * *

U.S. FISH MEAL AND SOLUBLES:

Production and Imports, January-February 1963: Based on domestic production and imports, the United States available supply of fish meal for January-February 1963 amounted to 63,713 short tons--14,669 tons (or 29.9 percent) more than during the same period in 1962. Domestic production was 334 tons (or 7.0 percent) more, and imports were 14,335 tons (or 32.4 percent) higher than in the same period in 1962. Peru continued to lead other countries with shipments of 46,631 tons.

The United States supply of fish solubles (including homogenized fish) during January-February 1963 amounted to 2,981 tons--a decrease of 2,744 tons as compared with the same period in 1962. Domestic production and imports dropped 16.8 percent and 87.4 percent, respectively.

U. S. Supply of Fish Meal and Solubles, January-February 1963 with Comparisons

Item	Jan.-Feb. 1/1963	Jan.-Feb. 1962	Total 1962
	(Short Tons)		
Fish Meal and Scrap:			
Domestic production:			
Menhaden	-	2/	243,839
Tuna and mackerel	3,930	2,928	20,874
Herring	-	2/	3,543
Other	1,202	1,870	41,744
Total production	5,132	4,798	310,000
Imports:			
Canada	5,794	5,757	42,806
Peru	46,631	35,231	186,249
Chile	3,800	1,157	9,247
Angola	575	-	-
So. Africa Republic	1,450	2,000	10,084
Other countries	331	101	3,921
Total imports	58,581	44,246	252,307
Available fish meal supply	63,713	49,044	562,307
Fish Solubles:			
Domestic production 3/	2,664	3,203	123,415
Imports:			
Canada	212	208	1,335
So. Africa Republic	-	-	1,717
Other countries	105	2,314	3,256
Total imports	317	2,522	6,308
Available fish solubles supply	2,981	5,725	129,723

1/Preliminary.
2/Included with "other."
3/50-percent solids. Includes production of homogenized condensed fish.

* * * * *

U.S. FISH MEAL, OIL, AND SOLUBLES:

Production, February 1963: During February 1963 a total of 2,847 tons of fish meal and scrap and 324,000 pounds of marine-animal oils was produced in the United States. Compared with February 1962, this was an increase of 781 tons or 37.8 percent in meal and scrap production, but a decrease of 57,000 pounds or 15 percent in oil.

Table 1 - U. S. Production of Fish Meal, Oil, and Solubles, February 1963 1/with Comparisons

Product	February 1/1963	February 1962	Jan.-Feb. 1/1963	Jan.-Feb. 1962	Total 1962
	(Short Tons)				
Fish Meal and Scrap:					
Herring	-	-	2/	2/	3,543
Menhaden 3/	-	-	-	-	243,839
Sardine, Pacific	3	234	9	689	743
Tuna and mackerel	2,222	1,587	3,930	2,928	20,874
Unclassified	622	545	1,193	1,181	19,337
Total	2,847	2,066	5,132	4,798	288,336
Shellfish, marine-animal meal and scrap	4/	4/	4/	4/	94
Grand total meal and scrap	4/	4/	4/	4/	310,000
Fish solubles	1,223	1,476	2,814	3,073	112,764
Homogenized condensed fish	-	90	50	130	10,451
	(1,000 Pounds)				
Oil, body:					
Herring	-	-	2/	2/	5,165
Menhaden 3/	-	-	-	2/	236,751
Sardine, Pacific	-	38	-	148	183
Tuna and mackerel	254	269	544	562	4,820
Other (including whale)	70	74	204	401	12,379
Total oil	324	381	748	1,111	259,198

1/Preliminary data.
2/Included in "other" or "unclassified."
3/Includes a small quantity of thread herring.
4/Not available on a monthly basis.
Note: Beginning with February 1963, fish oil is shown in pounds instead of gallons. Conversion factor, 7.75 pounds equal 1 gallon.

Tuna and mackerel meal amounted to 2,222 tons--accounting for 78 percent of the February 1963 meal total. Oil from tuna and

(Table continued on opposite column)

mackerel (254,000 pounds) comprised 78 percent of the February 1963 oil production.

A total of 1,223 tons of fish solubles was produced in February 1963--a decrease of 17 percent as compared with February 1962.

* * * * *

Major Indicators for U. S. Supply, March 1963: United States production of fish oil

Major Indicators for U.S. Supply of Fish Meal, Solubles, and Oil, March 1963

Item and Period	1963	1962	1961	1960	1959
	(Short Tons)				
Fish Meal:					
Production 1/:					
May	-	42,374	32,922	17,194	25,312
April	-	6,311	6,179	5,076	6,810
March	2,731	2,495	2,751	2,955	2,122
Jan.-Feb.	5,132	4,798	4,794	4,366	5,223
Jan.-Dec. prelim. totals 2/	-	288,336	289,039	257,969	275,396
Jan.-Dec. final tots.	-	310,000	311,265	290,137	306,551
Imports:					
May	-	25,269	25,116	9,496	16,329
April	-	26,390	19,060	10,397	17,654
March	-	18,528	20,458	18,652	16,719
Jan.-Feb.	58,581	44,246	23,875	16,652	39,163
Jan.-Dec. totals	-	252,307	217,845	131,561	132,955
Fish Solubles:					
Production 3/:					
May	-	16,014	13,624	7,191	18,639
April	-	3,766	2,539	2,870	6,987
March	1,958	1,903	2,564	2,462	2,382
Jan.-Feb.	2,664	3,203	3,450	3,509	4,124
Jan.-Dec. totals	-	124,334	112,241	98,929	165,359
Imports:					
May	-	265	283	59	4,874
April	-	323	220	134	1,622
March	-	308	135	87	410
Jan.-Feb.	317	2,522	374	2,089	1,965
Jan.-Dec. totals	-	6,308	6,739	3,174	26,630
	(1,000 Pounds) 5/				
Fish Body Oils:					
Production:					
May	-	32,186	33,844	13,705	20,180
April	-	5,054	3,406	1,925	3,379
March	411	328	488	512	326
Jan.-Feb.	748	1,111	761	752	791
Jan.-Dec. prelim. totals 4/	-	257,131	259,400	206,848	189,240
Jan.-Dec. final tots.	-	255,804	266,670	215,861	193,324
Exports:					
May	-	6,491	3,192	2,427	10,910
April	-	10,270	7,351	5,711	8,373
March	-	19,167	5,644	3,157	4,498
Jan.-Feb.	2,537	22,156	30,905	25,896	14,218
Jan.-Dec. totals	-	123,050	122,486	143,659	144,481

1/Does not include crab meat, shrimp, and misc. meals.
2/Preliminary data computed from monthly data. Fish meal production reported currently comprised 90 percent for 1959, 89 percent for 1960, 93 percent for 1961, and 93 percent for 1962.
3/Includes homogenized fish.
4/Preliminary data computed from monthly data. Represents over 95 percent of the total production.
5/Beginning with March 1963 fish oil is shown in pounds instead of gallons. Conversion factor, 7.75 pounds equal 1 gallon.
Note: Data for 1962 and 1963 are preliminary.

and fish solubles in March 1963 was higher by 25.3 percent and 2.9 percent, respectively, as compared with March 1962. Fish meal production increased by 9.5 percent.

Irradiation Preservation

RADIATION PASTEURIZATION OF KING CRAB MEAT REDUCES BACTERIAL POPULATION:

Basic research on the radiation pasteurization of king crab meat by the U. S. Bureau of Commercial Fisheries Technology Laboratory at Seattle, Wash., is concerned with the effect of package atmospheres upon microbiological growth and shelf-life of irradiated king crab meat. Recent experiments have shown a reduction in bacterial population from 100,000 to 100 per gram by irradiation levels of 200,000-400,000 rads.

With storage at 33° F. the microbiological population remains fairly constant for two weeks and then shows an increase with the most rapid growth in air-packed samples. The yeast population reaches 300,000 per gram in air-packed samples during the first 21 days of 33° F. storage after which yeasts decrease, probably due to the competitive effect of increasing bacteria population. In vacuum-packed samples the increase in yeast was not observed. On unirradiated samples bacteria growth occurred after a few days, and yeasts did not develop beyond 400 per gram, indicating bacteria competition from the start. Over 200 yeast cultures were selected from king crab meat and are being identified.

Note: See Commercial Fisheries Review, February 1963 p. 42.

Maine Sardines

CANNED STOCKS, APRIL 1, 1963:

Canners' stocks of Maine sardines on April 1, 1963, were 654,000 cases greater than those of April 1, 1962, but only 193,000 cases above stocks on hand two years ago on April 1, 1961. Distributors' stocks of canned Maine sardines in 1963 are not entirely comparable to those in pre-

vious years due to a change in statistical estimating procedures.

Canned Maine Sardines--Estimated Wholesale Distributors' and Canners' Stocks, April 1, 1963, with Comparisons

Type	Unit	4/1/63	4/1/62	4/1/61
Distributors	Actual cases	264,000	148,000	267,000
Canners	Std. cases[1]	699,000	45,000	506,000

[1] 1/100 3¾-oz. cans equal one standard case.

On April 15, 1962, carryover stocks at the canners' level amounted to about 33,000 cases. Adding the 1962 season pack of 2,116,000 cases results in a total supply of 2,149,000 cases as of April 1, 1963--up 89.8 percent from the total supply reported April 1, 1962, but down 7.9 percent from the total supply on April 1, 1961. Shipments between April 15, 1962, and April 1, 1963, amounted to 1,450,000 cases, up 33 percent from shipments of 1,087,000 cases during the comparable period in the previous marketing season.
Note: See Commercial Fisheries Review, April 1963 p. 21.

Michigan

GREAT LAKES LANDINGS DROP SHARPLY IN 1962:

Fish caught commercially from Michigan's Great Lakes waters dropped sharply in 1962. Landings amounted to about 22 million pounds and were valued at about $2,495,000 according to Michigan Conservation Department estimates. Compared with 1961, the commercial catch was down about 2,437,000 pounds and the value dropped about $463,000.

Chubs, lake herring, carp, and yellow perch were the leading varieties in 1962. These species accounted for 76 percent of the poundage and were valued at $1,660,000. Approximate landings for the four leading species were: chubs, 6,354,000 pounds; lake herring, 5,943,200; carp, 2,914,600; and yellow perch, 1,506,300. Landings of low value alewife totaled 1,398,800 pounds. Commercial landings of smelt amounting to 1,181,750 pounds were the lowest since 1950.

The 1962 lake trout catch reached an all-time low of 135,467 pounds. All but 325 pounds came from Lake Superior where commercial lake trout fishing was cancelled June 1, 1962, in a continuing effort to boost the comeback of that species in the upper Great Lakes.

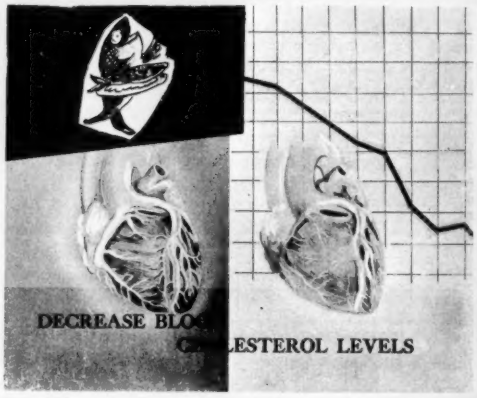
Only 819,600 pounds of whitefish were taken by commercial fishermen in 1962--sharply lower than their annual catch which averaged about 3 million pounds before lamprey predation started making inroads on populations of that species.

Commercial landings of all species totaled about 6,819,000 pounds from Lake Superior; 2,687,550 from Green Bay; 4,865,620 from Lake Michigan; 3,184,400 from Saginaw Bay; 2,692,200 from Lake Huron; and 1,837,960 from Lake Erie. (Michigan Department of Conservation, April 1963.)

National Fisheries Institute

EXPERIMENTS INDICATE FISH DIET IMPROVES HEALTH:

Experiments in Halifax, N.S., whereby the general health of groups of policemen, fire-



men, and businessmen vastly improved when they included fish in their diet 3 to 5 times a week was the subject of a talk at the 18th annual convention program of the National Fisheries Institute at Philadelphia, April 26-30, 1963.

The Halifax doctor, who prescribed the diets, told his audience that after a period of 2 years, the men on the diet found that their cholesterol had dropped, they had lost excess weight, and they felt better than they had for years.

The doctor explained that he had selected groups of policemen and firemen because they were most likely to stay in one location

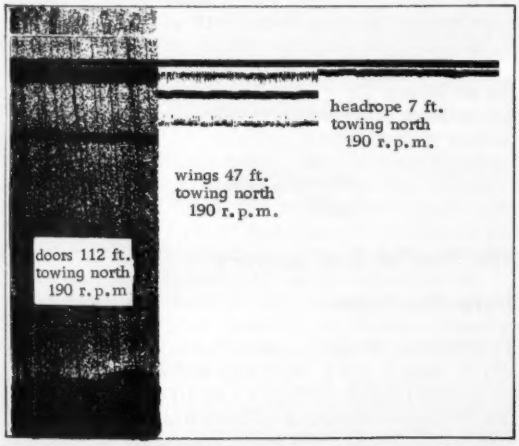
where they could be observed. However, the men were not on a controlled diet, but ate their meals in a family situation.

In explaining the effects of high cholesterol, thought by some nutritionists to be the result of including too much saturated fat in the diet, the doctor illustrated his talk with a model of plastic tubing. He showed how cholesterol builds up in the arteries, causing heart disease and strokes.

North Atlantic Fisheries Exploration and Gear Research

ELECTRONIC TRAWL-NET MEASURING AND TELEMETERING SYSTEM TESTED AND EVALUATED:

M/V "Delaware" Cruises 63-2 and 63-3 (March 7-28, 1963): The main objectives of Cruise 63-2 by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Delaware were: (1) to test and evaluate the performance of a "sonic" trawl-net measurement and telemetering system, and (2) to measure "electronically" various in-use dimensions of a No. 41 otter-trawl net.



An echo-sounder recording of the linear dimensions measured during Cruise 63-2. The length of trawl-warp used during this recording was 75 fathoms; depth of water was 26 fathoms.

A suitable trawling area on Stellwagen Bank was chosen for the initial performance tests. The remainder of the tests and the collection of instrumentation and measurement data was conducted on good trawlable bottom (about 26 fathoms) in an area 15 miles SSE of "No Mans Land Buoy" (buoy located approximately 24 miles south of New Bedford, Mass.).

The cruise was temporarily interrupted due to early trawling difficulties not related to the sonic-system and the vessel was forced to return to port. After net repairs had been effected and damaged instrumentation cables had been replaced, the vessel returned to the fishing grounds to complete the tests. Further minor adjustments were required to certain components of the system; the remainder of the cruise was devoted to measuring the various linear dimensions of the trawl net.

Cruise 63-3 was a continuation of measurement data collection begun during the preceding cruise. A total of 35 complete drags was made during the two cruises. Each drag lasted approximately 2 hours and consisted of 4 runs around the perimeter of a $1\frac{1}{2}$-mile square. This pattern of towing was used to determine what influence (if any), tide direction exerted upon the trawl net configuration. All components of the system worked very well and data collection proceeded without interruption.

A standard No. 41, roller rigged, manila trawl net was used throughout the two cruises with (a) thirty-six 8-inch floats secured to the headrope, (b) ten-fathom ground cables and five-fathom legs, and (c) trawl doors measuring 10 feet 6 inches x 54 inches weighing approximately 1,440 pounds.

The method used, for determining the net dimensions taken, was as follows:

(A) A "sonic" transducer was mounted on each trawl door and the two were electrically operated in parallel to measure the distance between the doors.

(B) Two transducers, operated in parallel, were also used to determine the wing-end spread. These were mounted on fiberglass-covered plywood vehicles which were constructed in such a manner that the transducer beams would always be aligned with one another. Flotation was added so that the vehicles would have neutral buoyancy.

(C) The headrope height was measured by a single transducer which was mounted on the headrope and beamed at the ocean bottom.

(D) A stepping switch, mounted on the headrope, was used to selectively telemeter

measurement information to a shipboard recording unit via an electric cable used as a "third" wire.

(E) The stepping switch was controlled automatically (or manually) from the wheelhouse aboard the vessel for the relay of information from specific instruments.

(F) A bottom contact switch was mounted on the footrope to constantly indicate when the net was on the ocean bottom.

Tentative Conclusions: (1) the tidal effect alone upon door spread caused a variation of from 7 to 19 feet; (2) the tidal effect alone upon wing-end spread caused a variation of from 3 to 7 feet; (3) the length of trawl cable and towing speed had little effect on the headrope height although this dimension was slightly less at faster towing speeds; (4) the headrope height varied from 7 to 7.5 feet; (5) the tide had a slight effect on the headrope height; (6) maximum trawl-door spread (162 feet) was attained when using 125 fathoms of trawl wire and towing at 190 r. p. m. (average speed 2.92 knots); (7) minimum trawl-door spread (110 feet) was attained when using 75 fathoms of trawl wire and towing at 190 r. p. m.; (8) maximum wing-end spread was 60 feet (125 fathoms of trawl wire at 190 r. p. m.); and (9) minimum wing-end spread was 45 feet (75 fathoms of trawl wire at 190 r. p. m.).

This cruise report summarizes the methods used to obtain the measurement data and lists the maximum and minimum dimensions attained. A detailed analysis of the measurement system and the measurements taken on these exploratory cruises will appear in a later publication.

* * * * *

TUNA STOCKS OFF U.S. ATLANTIC COAST SURVEYED:

M/V "Delaware" Cruise 63-4 (April 22-June 10, 1963): The U.S. Bureau of Commercial Fisheries exploratory fishing vessel Delaware (Cruise 63-4) began a 53-day cruise on April 22 to survey the tuna resources in the western, central, and eastern North Atlantic. The 53-day cruise was jointly sponsored by the Bureau, the Woods Hole Oceanographic Institution, and the National Geographic Society.

Cruise objectives included an investigation of the distribution, abundance, migration, and evaluation of the commercial fishing potentials of tunas in those areas. Long-line gear was used to sample subsurface fishes at selected stations, lures were trolled to sample fish in the surface layer between stations, and midwater trawl gear was used at long-line stations to aid in studying the abundance and distribution of smaller fishes. Considerable emphasis was placed on tagging of live adult tunas.

The Bureau's research vessel Geronimo from the Biological Laboratory at Washington, D. C., was scheduled to join the Delaware for the last part of the cruise to make hydrographic transects in the Gulf Stream area off the Middle Atlantic states. Scientific data collected by the research vessel was to be correlated with fishing results from Delaware stations.

Cooperating agencies were the Bureau's Ichthyological Laboratory at the U. S. National Museum, the Museum of Comparative Zoology at Harvard University, and the University of Miami Marine Laboratory at Miami, Fla.

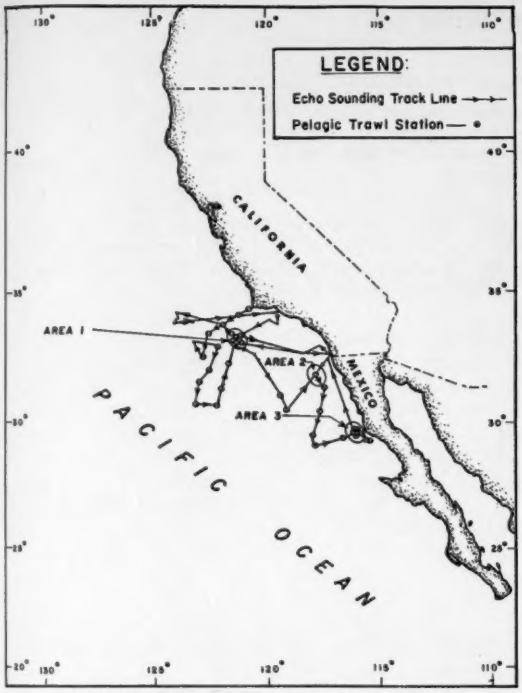
Foreign scientists, working in similar fields of endeavor, from Canada, Germany, Norway, and Portugal were observers aboard the Delaware during two parts of the cruise.

The vessel was scheduled to make port calls at Ponta Delgada, Azores, and at Bermuda before its return to Gloucester, Mass., in June.

North Pacific Exploratory Fishery Program

DISTRIBUTION AND ABUNDANCE OF ADULT HAKE OFF SOUTHERN CALIFORNIA AND NORTHERN MEXICO STUDIED:

M/V "John N. Cobb" Cruise 58 (February 20-April 5, 1963): Pelagic trawling for adult hake by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel John N. Cobb off Southern California and Baja California was part of a joint survey with the Bureau's research vessel Black Douglass. The cruise was planned to use the biological and oceano-



John N. Cobb Cruise 58, February 20-April 5, 1963.

graphic facilities of the Black Douglass in close proximity to the search and fishing gear facilities of the John N. Cobb.

Principal objective of the joint cruise was to determine the relative distribution and abundance of adult hake (Merluccius productus). The probable existence of vast quantities of adult hake had been previously predicted as a result of analysis of plankton net catch data, compiled in prior years. These data indicate relatively large amounts of hake eggs and larvae are normally present during late winter months in offshore waters between Point Conception, Calif., and Cedros Island, Mexico.

Standard Cobb pelagic trawls rigged to spread in a conventional manner with two aluminum Cobb pelagic hydrofoils and 60-fathom bridles were used during most of the cruise. During the first four drags an experimental Cobb pelagic trawl constructed of all monofilament webbing was tested and found unsatisfactory due to slippage of knots in the wing sections. No appreciable increase in speed was noted while the monofilament net was in use.

A full length (40 feet) cod-end liner constructed of $\frac{1}{2}$ inch (stretch measure) webbing was used during most of the drags to sample small fishes and invertebrates.

Fishing depth of the net during most of the cruise was determined by utilizing a scope ratio experience table compiled during the cruise by using a trolley-mounted bathythermograph to record various depths of the otter boards. The trolley-suspended bathythermograph was lowered and retrieved along the towing cable (after equilibrium of the net had been established) in increments of 25 and 50 fathoms of towing cable out. The resulting series of depths were then plotted to establish a curve which was used thereafter to position the net.

The survey was conducted along a trackline predetermined to cross those areas which had most consistently produced relatively large catches of hake eggs and larvae during the preceding 10 years. Station patterns along the trackline were made to coincide with certain California Cooperative Fisheries Investigations standard stations.

Continual echo soundings were by the John N. Cobb between all stations and during midwater sampling drags.

Routine drags were made on arrival at standard stations whenever weather permitted. Depth of drags varied from surface to 350 fathoms, depending on vertical position of scattering layers, lack of scattering layer, or indication of fish as determined by the echo sounder. Deep drags using all cable available were usually made at stations having no indication of fish or scattering layer. The length of drags varied between one hour and three hours. Most drags lasted two hours.

A total of 36 drags was made and approximately 2,000 miles of trackline were surveyed by echo sounding. Most of the tracklines and stations surveyed gave no indication of availability of fish either by analysis of echo soundings or catches of fish in the trawl. However, three areas were located which indicated the presence of fish by echo soundings and catch rates ranging from a single adult hake to 675 pounds. Centers of those three areas were located: (1) about 25 miles northwest of the San Juan Seamount; (2) about 18 miles southeast of Sixty-Mile Bank; and (3) about 15 miles southwest of Punta Baja, Mexico. Echo soundings made in those areas indicated relatively wide dispersion of fish extending over several square miles. Area 3 off Punta Baja was circumnavigated by echo

sounding and was found to cover approximately 23 square miles. Although areas 1 and 2 were not accurately circumnavigated, they appeared to be much larger, based on the length of time required to go across the area at a speed of ten knots. With an assumption that each echo sounding track through areas 1 and 2 passed through the main body of fish, it would then appear that area 1 covered approximately 1,600 square miles and area 2 covered over 100 square miles.

Persistent bad weather and the need to carry out preprogrammed phases of the cruise, involving explorations in other areas, limited the number of drags in each area to 7 in area 1, 1 in area 2, and 5 in area 3.

Five hake were also taken in a routine drag 50 miles west of the San Juan Seamount.

Preliminary examination of captured hake showed the catch composition to be mostly males in spent or partially spent condition. Most of the females were completely spent. On one occasion, eggs from a ripe female were fertilized. The culture obtained was then sampled and preserved at one-hour intervals to a maximum of 12 hours. Lengths of hake taken during the cruise ranged from 30 to 70 centimeters (11.8-27.6 inches).

Catches per Drag in Areas 1, 2, and 3.

Area	Hake Catch per Drag (No. of Fish)						
1	1	9	2	0	0	4	41
2	29						
3	129	3	65	300	495	1/0	41

1/Surface drag.

In every drag (14) which produced hake the following conditions existed: (1) proximity to seamounts, islands, continental shelf, and banks less than 60 miles; (2) indication of fish on echo-sounding machine; (3) good catches of recently spawned hake eggs made by the Black Douglass; and (4) fishing depth of the pelagic trawl exceeded 60 fathoms.

Several rare and semi-rare specimens of deep-sea fishes and invertebrates were also captured and preserved for future study by scientists at the Bureau's Biological Laboratory, La Jolla, Calif.

Fillets of hake were cooked and eaten on both the John N. Cobb and Black Douglass. All persons participating in the experiment were favorably impressed with flavor, texture, and palatability. Most common remarks were: "delicious," "excellent," and "good."

Oceanography

INSTRUMENTATION, FACILITIES AND EQUIPMENT DISCUSSED AT ICO MEETING:

A panel of the Interagency Committee on Oceanography (ICO) met on February 19, 1963, and considered the uses of telemetering systems.

An official of the National Aeronautics and Space Administration (NASA) discussed the advances made in the field of satellite collection of surface-procured information. He announced that a contract is under negotiation with the Stanford Research Institute to investigate and summarize the various telemetering requirements of the oceanographic, meteorological and other platforms anticipated by different agencies. The study will be designed to find out if uses and requirements are compatible. Specifications for program feasibility will be prepared first. It is desired to determine who the potential users are, the amount of information required, the number and types of surface platforms and the interval of radio contact. Study of the facts will begin in the fall of 1963. Industry will then be invited to develop the system. It is hoped that development will begin in early 1965, with the first flight test possible two years later. (U. S. National Oceanographic Data Center, Newsletter, March 31, 1963.)

Oysters

FLORIDA DRILL STOPPED BY TREATED SAND:

The Florida oyster drill (Thais haemostoma) is being studied at the U. S. Bureau of Commercial Fisheries Biological Laboratory at Milford, Conn. It has been shown that the Florida drill cannot cross a 6-inch barrier of sand treated with Polystream. Individual specimens did, however, penetrate the barrier as far as three inches thereby indicating considerably more resistance to the compound than local oyster drills such as Urosalpinx cinerea and Eupleura caudata.

South Atlantic Exploratory Fishery Program

AVAILABILITY OF CALICO SCALLOPS OFF GEORGIA AND FLORIDA COASTS RESURVEYED:

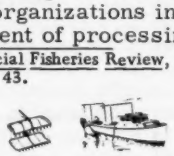
M/V "Silver Bay" Cruise 47 (March 25-April 11, 1963): The primary purpose of this cruise by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Silver Bay was to assess the location, distribution, and availability of calico scallops (Pecten gibbus) six months after the last survey (map p. 42).

A total of 202 drags, averaging 30 minutes each, were made between St. Simons Island, Ga., and Ft. Pierce, Fla. Six- and eight-foot tumbler dredges with 2-inch bag rings were used. Some were fitted with $2\frac{1}{2}$-inch-mesh nylon liners.

Dead scallop shell dominated catches in 12 to 30 fathoms in all areas surveyed except in a portion of the area lying north of Jacksonville, Fla., and individual live scallops were taken over a total depth range of 10 to 28 fathoms. Best catches were made north off Cape Canaveral, Fla., in 25 fathoms (approximate latitude 28° 54' N.), but nowhere did catches exceed $3\frac{1}{2}$ bushels per drag. Scallops taken averaged 55 millimeters ($2\frac{1}{4}$ inches) in shell width, and all specimens examined were in spawning condition. Meats from these were fair to poor in quality and averaged about 155 to the pint. Data from previous explorations have indicated that such low yields are to be expected in the spring.

Scallop samples were collected for further study by Bureau technologists and biologists. Live calico scallops were landed to assist two industry organizations in their respective development of processing equipment.

Note: See Commercial Fisheries Review, January 1963 p. 53 and November 1962 p. 43.



South Carolina

FISHERIES BIOLOGICAL RESEARCH PROGRESS, JANUARY-MARCH 1963:

The following is a report on the progress of biological research by the Bears Bluff Laboratories, Wadmalaw Island, S. C., for January-March 1963:

Shrimp Studies: Unusually cold weather in January-March 1963 resulted in below normal water temperatures throughout inshore areas. Experimental trawl fishing under the shrimp survey program indicated that marine life in inside waters was affected by the low temperatures. In the first quarter of 1963, the survey yielded a catch of white shrimp that was down about 90 percent from that in the same period of the previous year. The catch of blue crab, spot, and croaker was also down, although the decline was less drastic.

The effects of the subnormal water temperatures may have been only temporary. The decrease in the shrimp survey catch could be merely an indication that most of the shrimp, fish, and crab populations moved to deeper offshore waters. When water temperatures began to rise in March, many species of fish and shellfish showed a rapid increase in abundance throughout inside waters. The effects of the cold on the white shrimp population will not be known until June 1963, when the spawning crop of white shrimp postlarvae begin to enter coastal waters.

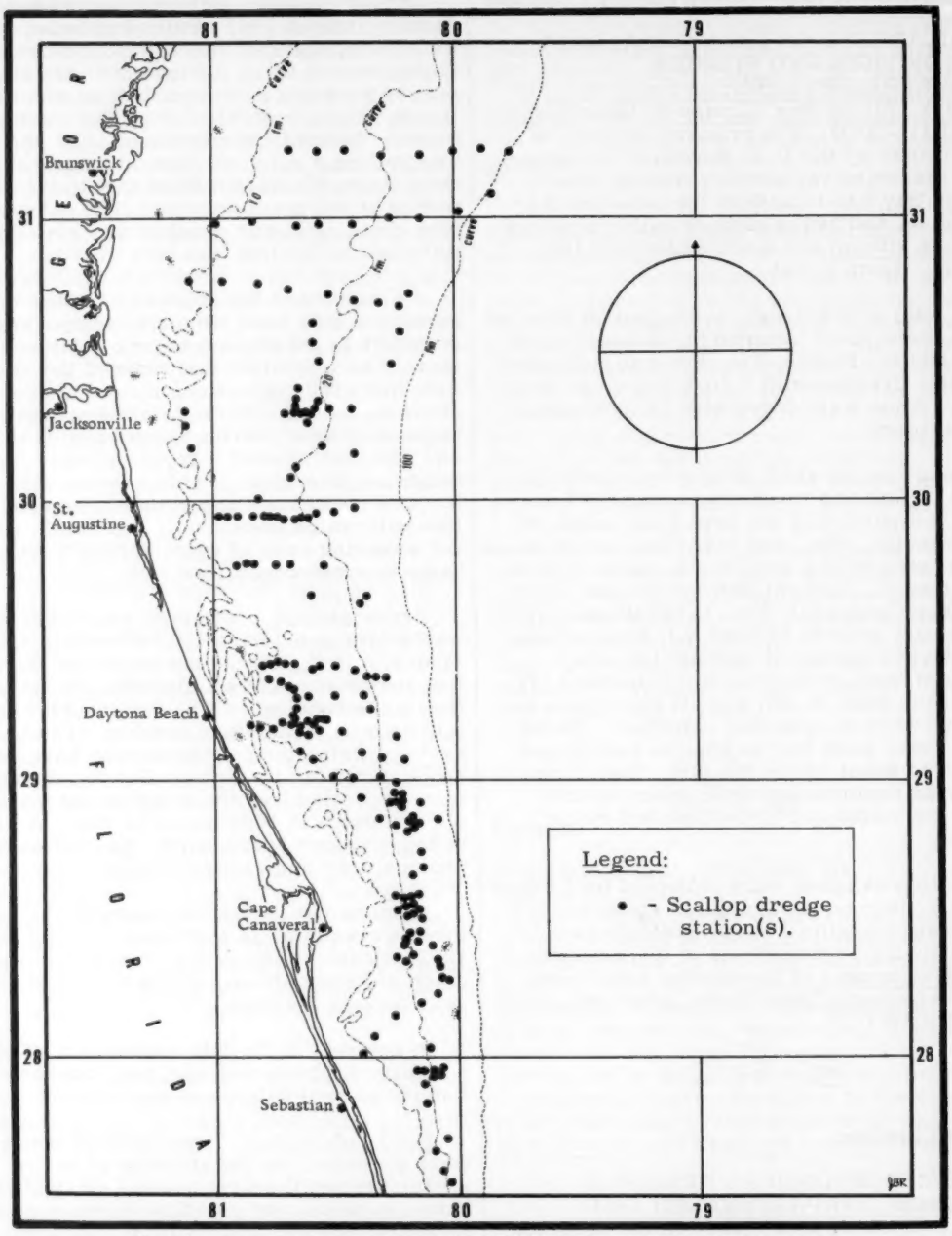
Brown shrimp postlarvae were several weeks late in entering coastal sounds and rivers in 1963. It was not until late March that they became at all plentiful, and even then they were running well behind the 1962 tabulations both in time and number. The below average water temperatures may have been responsible for the delay. But the March returns indicated that the commercial brown shrimp catch in 1963 would be less than that of the previous year, unless the postlarvae became very numerous in April.

Because the postlarvae appeared at least three weeks later in 1963 than they did in 1962, it seemed likely that the commercial catch of brown shrimp would be delayed this year by 2 or 3 weeks.

In contrast to the late appearance of shrimp postlarvae, postlarval spot and croaker showed a more normal pattern of recruitment.

Pond Cultivation: Experimental ponds were prepared for the stocking of brown shrimp during the first quarter of 1963. Flood gates, screens, and overflow pipes were repaired and the ponds were flushed out with tidal water for several days.

One of the 1-acre experimental ponds was opened on March 15, at which time postlarval



Shows the station pattern for cruise 47 of the M/V Silver Bay, March 25-April 11, 1963.

brown shrimp began to appear in a nearby creek. The pond was allowed to stock naturally through the intake of water on each flood tide. Another 1-acre pond was also allowed to stock naturally, and it was hoped that this could be supplemented by the addition of postlarval and juvenile shrimp caught by nets in nearby waters. Both ponds were to be treated with rotenone to remove predaceous fishes as soon as stocking was completed.

Other experiments conducted in conjunction with pond cultivation included attempts at raising postlarval shrimp in large concrete tanks, and in large and small aquaria. The work will be carried on and intensified with white shrimp postlarvae in June and July.

Tuna

NEW ENGLAND PURSE-SEINE FISHERY TAKES LEAP FORWARD IN 1962:

The development of a large-scale commercial tuna fishery in New England made considerable progress in 1962. West Coast tuna interests were active in this fishery for the first time, and sent large purse seiners to fish for tuna out of New England ports. Seven tuna purse seiners operated off New England between July and October 1962. During that period they landed about 3,300 short tons of tuna, mostly bluefin with some skipjack. An estimated additional 250 tons were caught by traps and sportsmen. There were indications that the New England purse-seine fishery will continue to expand in the future. Some West Coast interests were considering the feasibility of building canneries in the New England area.

The new trend in purse seining for tuna in New England had its beginning in 1958 when a Provincetown, Mass., vessel commenced purse seining for tuna with gear loaned by the U. S. Bureau of Commercial Fisheries, and as a result of the Bureau's exploratory fishing in 1951-53. Table 1 illustrates how the New England tuna landings by all types of gear have increased since 1958.

Purse-seine tuna was landed at 4 New England ports in 1962 (table 2). The larger seiners landed at New Bedford, Mass., and Providence, R.I. Four of the smaller vessels landed catches at New Bedford earlier but changed to Sagamore, on the Cape Cod Canal, in August when they started fishing in Massachusetts Bay. Landings at Provincetown were by one local vessel.

Table 1 - New England Tuna (All Species) Landings by State, 1952-62[1/]

Year	Mass.	Me.	R.I.	Conn.	Total
			(Short Tons)		
1962[2/]	2,900.0	50.0	600.0	-	3,550.0
1961	1,105.0	52.5	19.0	-	1,176.5
1960	593.0	83.0	19.0	-	695.0
1959	1,329.0	31.0	30.5	-	1,390.5
1958	1,189.5	22.5	20.0	0.5	1,232.5
1957	441.0	13.5	24.0	2.0	480.5
1956	193.0	9.5	10.0	2.0	214.5
1955	402.0	13.0	29.5	2.0	446.5
1954	672.5	1.5	78.5	1.0	753.5
1953	929.0	25.0	16.0	2.5	972.5
1952	537.6	18.5	16.9	3.9	576.9

1/Includes landings by all types of gear.
2/Preliminary.

Fig. 1 - One of the large West Coast-type tuna purse seiners that fished for tuna in New England waters in the summer and fall of 1962.

Table 2 - New England Purse-Seine Tuna Landings by Port and Species, 1962[1/]

Port	Trips	Bluefin	Skipjack	Total
	No.		(Short Tons)	
New Bedford, Mass.	34	1,430.9	380.5	1,811.4
Provincetown, Mass.	13	229.4	0.4	229.8
Sagamore, Mass.	50	684.2	-	684.2
Providence, R.I.	3	494.7	90.0	584.7
Total	100	2,839.2	470.9	3,310.1

1/Preliminary.

The 1962 purse-seine tuna season commenced when the first trip was landed July 12; the last trip was landed on October 17. Tuna landings were heaviest in August and September (table 3). Fishing was reported generally better south of Cape Cod in 1962, and tuna were not as plentiful in the Massachusetts Bay as in some previous years. The summer

Table 3 - New England Purse-Seine Tuna Landings by Week, 1962

Week Ending	Trips	Bluefin	Skipjack	Total
	No.	(Short Tons)		
July 14	3	14.7	-	14.7
21	7	121.3	-	121.3
28	4	66.4	-	66.4
Aug. 4	11	439.1	110.5	549.6
11	9	393.8	185.5	579.3
18	6	187.3	138.4	325.7
25	6	82.7	-	82.7
Sept. 1	11	378.0	36.5	414.5
8	8	407.9	-	407.9
15	6	106.1	-	106.1
22	11	366.5	-	366.5
29	4	36.2	-	36.2
Oct. 6	9	62.9	-	62.9
13	2	137.8	-	137.8
20	3	38.5	-	38.5
Total	100	2,839.2	470.9	3,310.1

weather in New England averaged much cooler than normal, and fog and overcast conditions hampered spotting of the fish by airplane.

Fishing was fair to good off Long Island, N. Y., early in the season, but excellent fishing on Pollock Rip, south of Cape Cod, attracted the vessels in late August and early September. The 3 larger purse seiners fished mostly in both areas, while the 4 smaller vessels fished in Massachusetts Bay.

Skipjack tuna were caught in large quantities off Block Island in August. They were the first known large catches of skipjack tuna in the western North Atlantic.

Most of the 1962 tuna landings were frozen on shore for canning in plants on both the East and West Coasts. Small amounts were sold on the fresh-fish markets in Boston and New York. One large shipment of over one million pounds of frozen bluefin tuna was exported to Italy in September.

Fig. 2 - Unloading tuna from the hold of one of the large purse seiners. The large galvanized buckets used for unloading have a capacity of about 1,000 pounds.

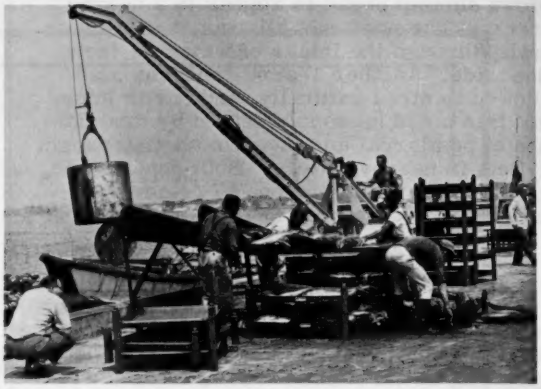


Fig. 3 - Another view of unloading operations showing large galvanized bucket used to bring the tuna from the hold to the wharf and the racks for transporting the fresh tuna to the freezer.

The purse-seine fleet fishing New England waters in 1962 was comprised of 4 vessels under 150 gross tons and 3 larger vessels (table 4). Two were local vessels that fished out of New England in 1961, 2 seiners were purchased by New England interests from a West Coast owner, and 3 large seiners were provided by West Coast firms.

Table 4 - New England Purse-Seine Tuna Landings by Size of Vessel, 1962

Vessels Size	Trips No.	Bluefin	Skipjack	Total
		(Short Tons)		
150 Gross Tons and over	3	24	1,676.9	431.0	2,107.9
Under 150 Gross Tons	4	76	1,162.3	39.9	1,202.2
Total	7	100	2,839.2	470.9	3,310.1

During August 1962 one of the large West Coast purse seiners landed a trip of 250 tons of tuna at New Bedford, Mass. This was the largest single trip landed at a New England port. However, the largest seiner in the fleet made only one trip in September and caught 350 tons off New England. Only 10 tons of tuna from that trip was landed at New Bedford and the remainder was delivered to Puerto Rico. The vessel fished in the Pollock Rip area for 15 days and made only 7 sets.

Several large West Coast tuna-canning firms conducted surveys of New England ports with a cannery site in mind. Gloucester, New Bedford, and Providence were the chief ports of interest. One firm was given an option on a $7\frac{1}{2}$-acre site at the Municipal Wharf in Providence.

Tuna unloading facilities were constructed on piers at New Bedford and Providence early

Fig. 4 - View of fresh bluefin tuna on sorting table preparatory to racking and freezing.

Fig. 5 - Forklift truck loading six-foot high pallets or racks into truck for transport to freezer.

in the 1962 season. A new union was chartered in Providence to handle the unloading of tuna. Some of the New England-caught tuna were shipped to a tuna cannery in Maryland which was built in early 1962.

Commercial tuna seining in some inshore areas met with opposition by sport fishermen in Massachusetts and New York during the year. Massachusetts authorities were requested to close some areas to commercial tuna fishing but no action was taken.

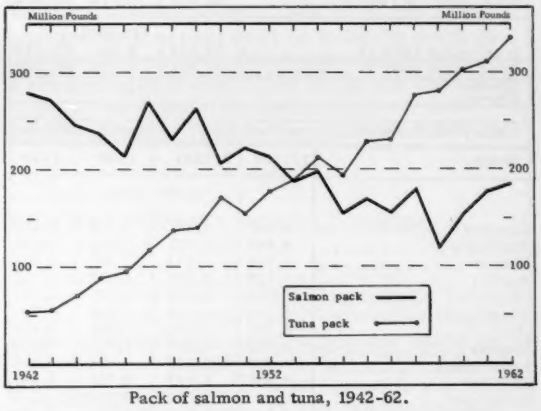
Although there may be some problems to overcome, the prospect of a large tuna fishery in New England appears to be promising.

--John J. O'Brien
Supv. Market News Reporter
Fishery Market News Service
Boston, Mass.

United States Fisheries

CANNED FISHERY PRODUCTS, 1962:

The 1962 pack of canned fishery products by 373 plants in the United States, American Samoa, and Puerto Rico amounted to 36.9 million standard cases (1.1 billion pounds) valued at $455.7 million to the packers. Compared with 1961, production was up 3.5 million cases (92 million pounds) and $32.8 million. The increases resulted from a record pack of tuna and large packs of Maine sardines and animal food. Salmon also contributed to the increase in volume while the value of shrimp was much higher in 1962 than in 1961.



Pack of salmon and tuna, 1942-62.

The pack for human consumption (758.6 million pounds) was nearly 50 million pounds above that of 1961. The production of bait and animal food (376.4 million pounds) was about 42 million pounds larger. The pack of canned animal food amounted to 4,838,739 standard cases valued at $17,056,610. The value of three items--salmon, tuna, and animal food--accounted for 79 percent of the total value of canned fishery products.

* * * * *

FISH STICKS AND PORTIONS PRODUCTION, 1962:

The United States production of fish sticks and portions during 1962 amounted to 150.9 million pounds with a value of $58.2 million--a gain of 16 percent in quantity and 11 percent in value as compared with 1961. Fish sticks totaled 72.2 million pounds in 1962--2.4 million pounds or 3 percent above 1961, and fish portions amounted to 78.7 million pounds--up 18.8 million pounds or 31 precent.

Cooked fish sticks (66.8 million pounds) made up 93 percent of the 1962 fish stick total, while the remaining 5.4 million pounds or 7 percent consisted of raw fish sticks. A total of 76.3 million pounds of breaded fish portions (of which 62.3 million pounds were raw) and 2.4 million pounds of unbreaded portions was processed during 1962.

Table 1 - U.S. Production of Fish Sticks by Months and Type, 1962 1/

Month	Cooked	Uncooked	Total
	(1,000 Lbs.)		
January	5,689	393	6,082
February	6,511	375	6,886
March	7,223	435	7,658
April	5,241	478	5,719
May	5,151	492	5,643
June	4,698	419	5,117
July	3,319	421	3,740
August	5,350	410	5,760
September	6,056	526	6,582
October	6,138	560	6,698
November	5,808	497	6,305
December	5,617	410	6,027
Total quantity 1962 1/	66,801	5,416	72,217
Total quantity 1961 2/	65,006	4,818	69,824
	($1,000)		
Total value 1962 1/	28,029	2,047	30,076
Total value 1961 2/	28,321	1,779	30,100

1/Preliminary.
2/Revised.

Table 2 - U.S. Production of Fish Sticks by Months, 1959-62

Month	1/1962	2/1961	1960	1959
	(1,000 Lbs.)			
January	6,082	6,091	5,511	6,277
February	6,886	7,097	6,542	6,352
March	7,658	7,233	7,844	5,604
April	5,719	5,599	4,871	4,717
May	5,643	5,129	3,707	4,407
June	5,117	4,928	4,369	4,583
July	3,740	3,575	3,691	3,790
August	5,760	6,927	5,013	3,879
September	6,582	5,206	5,424	5,353
October	6,698	6,133	6,560	5,842
November	6,305	6,288	6,281	4,831
December	6,027	5,618	5,329	4,743
Total	72,217	69,824	65,142	60,378

1/Preliminary.
2/Revised.

Table 3 - U. S. Production of Fish Sticks by Areas, 1962 and 1961

Area	1/1962		2/1961	
	No. of Firms	1,000 Lbs.	No. of Firms	1,000 Lbs.
Atlantic Coast States	26	57,398	23	57,246
Inland & Gulf States	6	8,331	7	6,744
Pacific Coast States	10	6,488	10	5,834
Total	42	72,217	40	69,824

1/Preliminary.
2/Revised.

Table 4 - U. S. Production of Fish Portions by Areas, 1962 and 1961

Area	1/1962		2/1961	
	No. of Firms	1,000 Lbs.	No. of Firms	1,000 Lbs.
Atlantic Coast States	26	44,072	26	34,496
Inland & Gulf States	12	32,081	12	23,945
Pacific Coast States	8	2,525	6	1,406
Total	46	78,678	44	59,847

1/Preliminary.
2/Revised.

Table 5 - U. S. Production of Fish Portions by Months, 1962 1/

Month	Cooked	Breaded Uncooked	Total	Unbreaded	Total
	(1,000 Lbs.)				
January	966	3,979	4,945	132	5,077
February	788	5,306	6,094	266	6,360
March	1,340	5,510	6,850	186	7,036
April	1,450	4,806	6,256	152	6,408
May	1,189	4,478	5,667	151	5,818
June	1,083	4,876	5,959	178	6,187
July	507	4,006	4,513	166	4,679
August	973	5,569	6,542	145	6,687
September	1,579	5,423	7,002	178	7,180
October	1,805	7,711	9,516	355	9,871
November	1,067	6,058	7,125	281	7,406
December	1,260	4,568	5,828	191	6,019
Tot. qty. 1962 1/	14,007	62,290	76,297	2,381	78,678
Tot. qty. 1961 2/	11,003	46,783	57,786	2,061	59,847
	($1,000)				
Tot. value 1962 1/	5,999	21,257	27,256	833	28,089
Tot. value 1961 2/	4,544	16,843	21,378	805	22,192

1/Preliminary.
2/Revised.

Table 6 - U. S. Production of Fish Portions by Months, 1959-1962

Month	1/1962	2/1961	1960	1959
	(1,000 Lbs.)			
January	5,077	4,303	3,632	2,692
February	6,360	4,902	3,502	3,025
March	7,036	5,831	4,706	3,225
April	6,408	4,484	3,492	2,634
May	5,818	3,879	3,253	2,684
June	6,137	4,039	3,995	3,247
July	4,679	3,962	4,088	2,227
August	6,687	4,963	3,558	2,796
September	7,180	5,745	4,631	3,558
October	9,871	6,759	5,275	4,314
November	7,406	5,789	4,790	3,483
December	6,019	5,191	4,459	3,262
Total	78,678	59,847	49,381	37,147

1/Preliminary.
2/Revised.

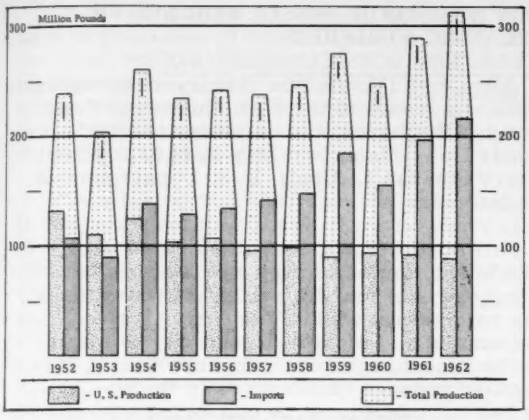
The Atlantic Coast was the principal area in the production of both fish sticks and fish portions with 57.4 and 44.1 million pounds, respectively. The inland and Gulf States were next with 8.3 million pounds of fish sticks and 32.1 million pounds of fish portions. The Pacific Coast States made up the remaining 9 million pounds of fish sticks and fish portions.

* * * * *

PACKAGED FISHERY PRODUCTS PRODUCTION, 1962:

Production of fresh and frozen packaged fish fillets and steaks in the United States in 1962, totaled nearly 170 million pounds valued at $58 million to the processors. Compared with 1961, this was an increase of nearly 12 million pounds and $7 million. It was estimated that round fish weighing 486.1 million pounds were required for the 1962 production.

The domestic production of groundfish fillets, steaks, etc., amounted to 90.5 million



Supply of groundfish fillets, 1952-62.

pounds, 2.5 million pounds less than in 1961, and 58.2 million pounds below the 148.8 million-pound-peak production of 1951. In New England, the production of flounder fillets increased 43 percent (from 18.2 million pounds in 1961 to 26 million pounds in 1962) largely as a result of excellent yellowtail flounder fishing. New England production of whiting fillets was also up from 3.3 million pounds in 1961 to 6.2 million pounds in 1962--an increase of 87 percent.

U.S. Fishing Vessels

ANOTHER LARGE STEEL TRAWLER ADDED TO BOSTON FLEET:

The Boston, Mass., fishing fleet acquired a second new steel trawler when the Sturgeon Bay arrived at the Boston Fish Pier on May 1, 1963. The vessel is identical to the first new trawler, the Massachusetts, which started fishing out of Boston in December 1962.

The 124-foot Sturgeon Bay was built in a Sturgeon Bay, Wis., shipyard for a Wisconsin firm which operates fishing trawlers out of Boston. Construction of the vessel was aided by a Federal grant of $153,000 under the vessel subsidy program of the U. S. Bureau of Commercial Fisheries. The total cost of the vessel was about $461,000.

The Sturgeon Bay will be used in the New England groundfish fishery (cod, haddock, hake, pollock, cusk, and ocean perch). It has a fish hold capacity of 250,000 pounds and will carry a crew of about 17.

The addition of the Sturgeon Bay is another step forward in the revitalization of the New England groundfish fleet which has been hurt by competition from newer vessels operating out of foreign countries. Three other fishing vessels for use in the New England groundfish fishery are now under construction with the aid of Federal construction grants--2 wooden trawlers (95-foot and 80-foot) for New Bedford, Mass., owners, and a 100-foot wooden trawler for a Rockland, Maine, owner.

Under the fishing vessel construction grant program, up to one-third of the cost of building a fishing vessel can be financed by the Federal Government. This is to offset the lower construction cost of vessels built in foreign shipyards. Mortgage insurance and a loan program are other projects designed to help the American fishermen.

Note: See Commercial Fisheries Review, February 1963 p. 54

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BOTTOM FISHING VESSELS URGED TO COMPLY WITH INTERNATIONAL REGULATIONS:

The presence of foreign flag fishing vessels on the fishing grounds off the New England coast stresses the importance for captains of United States fishing vessels to conform strictly with provisions of the "International Regulations For Preventing Collisions at Sea" while operating their craft in international waters. Rule 9 (e) (III) prescribing signals to be displayed by fishing vessels operating nets or dredges along the sea bottom is of special importance to trawlers and scallop dredgers. This rule states that "All Vessels Towing Nets or Dredges Along the Sea Bottom During Daylight Hours Shall Display a Basket in a Prominent Position."

Rule 26 of the International Regulations states that all vessels not engaged in fishing shall when underway keep out of the way of any vessels fishing with nets, lines, or trawls. Thus, displaying a basket when towing a net or dredge complies with the regulations affecting vessels engaged in bottom fishing, and alerts vessels in the vicinity to keep clear and not interfere with operations. The basket

must be shown only when the vessel is fishing. The U. S. Bureau of Commercial Fisheries urges all vessel captains to conform strictly with the international rules as prescribed or affecting fishing vessel operations.

* * * * *

DOCUMENTATIONS ISSUED AND CANCELLED, MARCH 1963:

During March 1963, a total of 36 vessels of 5 net tons and over were issued first documents as fishing craft, as compared with 19 in March 1962. There were 39 documents cancelled for fishing vessels in March 1963 as compared with 43 in March 1962.

Table 1 - U. S. Fishing Vessels 1/--Documentations Issued and Cancelled, by Areas, March 1963 with Comparisons

Area (Home Port)	Mar. 1963	Mar. 1962	Jan.-Mar. 1963	Jan.-Mar. 1962	Total 1962
	(Number)				
Issued first documents 2/:					
New England	1	1	4	3	28
Middle Atlantic	1	1	2	1	3
Chesapeake	3	1	6	7	43
South Atlantic	6	3	13	7	47
Gulf	17	10	40	25	110
Pacific	7	3	16	15	130
Great Lakes	1	-	1	-	5
Puerto Rico	-	-	-	-	2
Total	36	19	82	58	368
Removed from documentation 3/:					
New England	3	1	5	6	24
Middle Atlantic	5	6	15	15	39
Chesapeake	2	-	5	3	23
South Atlantic	4	7	14	14	38
Gulf	13	10	23	29	104
Pacific	11	15	26	42	111
Great Lakes	1	2	3	8	22
Hawaii	-	2	-	3	3
Puerto Rico	-	-	-	-	1
Total	39	43	91	120	365

1/For explanation of footnotes, see table 2.

Table 2 - U. S. Fishing Vessels--Documents Issued and Cancelled, by Tonnage Groups, March 1963

Gross Tonnage	Issued 2/	Cancelled 3/
	(Number)	
5-9	11	12
10-19	9	7
20-29	2	-
30-39	-	3
40-49	3	8
50-59	-	2
60-69	1	3
70-79	9	-
110-119	-	1
140-149	-	1
180-189	-	1
240-249	1	-
270-279	-	1
Total	36	39

1/Includes both commercial and sport fishing craft. A vessel is defined as a craft of 5 net tons and over.
2/Includes 1 redocumented vessel in March 1963 previously removed from records. Vessels issued first documents as fishing craft were built: 18 in 1963; 2 in 1962; 1 in 1960; 1 in 1955; 1 in 1952; and 13 prior to 1951.
3/Includes vessels reported lost, abandoned, forfeited, sold alien, etc.
Source: Monthly Supplement to Merchant Vessels of the United States, Bureau of Customs, U. S. Treasury Department.

* * * * *

NEW RESEARCH VESSEL FOR NORTH ATLANTIC FISHERIES INVESTIGATIONS COMMISSIONED:

Albatross IV, the new fishery-oceanographic research vessel of the U. S. Bureau of Commercial Fisheries was commissioned at Woods Hole, Mass., on May 9, 1963, by Secretary Stewart L. Udall, U. S. Department of the Interior.

At the ceremony, Secretary Udall said, "We are commissioning a new vessel, the Albatross, the fourth in an illustrious line of this name since 1882. The first Albatross was unique and modern for its day--being the first oceanographic research vessel of any consequence constructed in the world. Its two successors were converted vessels. The ship before us, however, is one of the best equipped for this specific purpose by the Federal Government since the first Albatross.

"We have a new Albatross--but we need a fleet of them. For despite our pioneering efforts over 80 years ago, our Nation still thinks of the oceans principally as highways. Today, we approach the sea with a new concept:

"The ocean is the newest and last frontier of the world... ."

The Albatross IV is designed to conduct fisheries and oceanographic research in the Northwest Atlantic. She is especially equipped to collect information on the distribution and abundance of groundfish and sea scallops, and on the environmental factors which affect seasonal and long-term changes in the fish stocks. In addition, she is equipped to study the bottom organisms which form the food supply of groundfish, and to investigate plankton populations and oceanographic conditions generally.

The vessel is a 187-foot single-screw stern trawler powered by twin Diesel engines, and is designed to travel at 12 knots with a range of 9,000 miles. One of the great problems of oceanographic research is holding station and maintaining vertical wire angle. On the Albatross IV, this will be accomplished through the use of a controllable pitch propeller provided with a Kort-type nozzle rubber and a bow thruster. The vessel is reinforced against ice and is air-conditioned to enable its use for general fishery and oceanographic research in any navigable waters in the world--in all seasons--in all reasonable conditions of weather and temperature.

On the Albatross IV, special attention was paid to provision of ample working space on the main deck; to the provision of adequate laboratory space for biological, chemical, and oceanographic work; and to the installation of special gear, handling equipment, and modern electronic devices.

The after part of the vessel's main deck is the main working area. Here is where all of the various kinds of gear will be lowered into the sea and recovered. There is a stern ramp for hauling nets and other gear aboard similar to that in use on many European stern trawlers. Sheaves for carrying trawl warps and other lines are suspended from a moveable gantry which can be rotated hydraulically 115° aft of the vertical and 90° forward and will lift 10,000 pounds. Its main function will be to handle the otter trawl, mid-water trawl, and heavy dredges.

There are 2 hydrographic winches on the after end of the boat deck each with a capacity of 20,000 feet of $\frac{1}{4}$-inch wire. Collector rings are provided for 5 conductors. The control console is on the end of a 20-foot extension cable so that each winch can be operated either at the winch, at the rail, or on the main deck.

A major effort was made in the arrangement of the laboratory spaces to provide good communications between them as well as with the rest of the ship, but to keep them separate from the traffic of people engaged in other aspects of the ship's business. As little of the furniture and equipment as possible is permanently fastened to the ship's structure so as to permit easy rearrangement to meet the needs of the future.

Just forward of the fishing deck, open aft and on both sides, but sheltered by the house forward and the deck overhead, is a 32 by 10-foot area, designed for the preliminary processing of marine collections. There is a bathythermograph winch with 2,000 feet of $\frac{3}{16}$-inch wire at each rail. Collector rings are provided for the use of conducting cable. A dumbwaiter communicates with the storage room on the lower deck and up to the boat deck.

Forward of the rough laboratory on the port side is the 13-foot by 33-foot wet laboratory which can be divided into two separate spaces by a moveable bulkhead. Facilities include a wet gear locker, dumbwaiter to decks below and above, 3 sinks, 3 salt water tables, work benches, overhead cabinets, refrigerator and storage lockers. Every 3 feet along the permanent bulkheads are outlets for 110 volt alternating current, compressed air, cold salt water, hot fresh water, and cold fresh water.

There is an instrument well in the wet laboratory and another in the hydrographic laboratory. These are $3\frac{1}{2}$ feet square and can be opened or closed by a diver or can be used to put divers in the water. Provision was made for a 5-foot diameter fish well in the storage room. It is now part of the fuel oil tank system, but it can be made free-flooding by a minor alteration in the plating. It is anticipated that for the present, live fish will ordinarily be carried in portable tanks on deck or in the storage room supplied with sea water from the laboratory system.

Forward of the rough laboratory on the starboard side is the 10-foot square hydrographic laboratory for the immediate processing of water samples. It has Nansen bottle racks, storage cabinets, work bench, sink, and desk. Over the desk is an instrument panel giving time, ship's heading and speed, water depth, wind direction and velocity, air temperature, relative humidity, sea surface temperature, and barometric pressure. The indicating and recording unit for the telerecording bathythermograph is also visible from the desk.

Communicating with the hydrographic laboratory is a 7-foot by 13-foot space for chemical analysis. It has a sink, work bench, cabinets, freezer, salinometer, and spectrophotometer.

Forward of the chemistry laboratory, the dry laboratory, 15 by 11 feet, has a drafting table, two desks, a work table, cabinets, typewriter, and calculators. There is a fisherman's asdic and a 6,000-foot sounder either of whose signals can be displayed on a precision graphic recorder.

A 5-foot by 6-foot photographic darkroom with all necessary furniture and equipment is just forward of the wet laboratory.

There is a 10-foot by 12-foot laboratory on the after part of the boat deck which is intended primarily for the monitoring, maintenance, and repair of specialized electronic equipment. It has work benches, cabinets,

cable ports, 4 kinds of electric power, and a dumbwaiter communicating with the main and lower decks. Like all other laboratory spaces, it can be readily converted to other purposes.

The gyrocompass, radiotelephone, as well as power supplies and converters for the electronic equipment are housed in a room behind the pilot house on the starboard side. A walk-in refrigerator and a freezer are located on the lower deck at the forward bulkhead.

On May 13, the Albatross IV sailed for Georges Bank on her first assignment (Cruise 63-1), which was to collect quantitative samples of the sea scallop population.

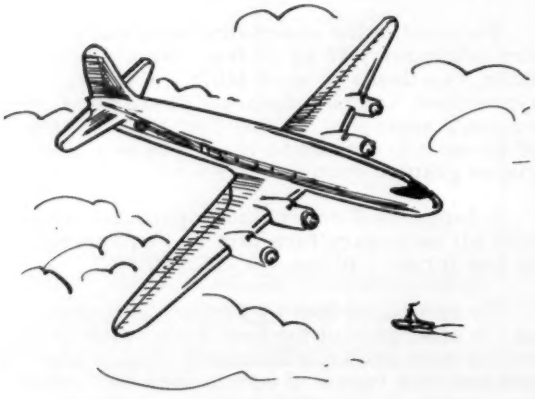
Note: See Commercial Fisheries Review, January 1963 p. 56 and July 1962 p. 42.

U. S. Foreign Trade

AIRBORNE IMPORTS OF FISHERY PRODUCTS, OCTOBER 1962:

Airborne fishery imports into the United States in October 1962 continued at about the same level as in the previous month, but the value of the October airborne shipments was up 11.9 percent due mainly to the arrival of 8,082 pounds of caviar from Iran. The Iranian caviar entered through the U. S. Customs District of New York.

Airborne shrimp imports in October consisted of 832,844 pounds of fresh or frozen raw headless, 90,348 pounds of fresh or frozen peeled and deveined, and 36,134 pounds of unclassified shrimp. Over 92 percent of the airborne shrimp imports in October entered through the Customs District of Florida. The remainder entered through the Customs Districts of New Orleans (La.), Galveston (Tex.), Los Angeles (Calif.), and San Francisco (Calif.).



U. S.[1] Airborne Imports of Fishery Products, January-October 1962

Product and Origin[2]	October Qty.[3]	October Value[4]	Jan.-October Qty.[3]	Jan.-October Value[4]
	Pounds	US$	Pounds	US$
Fish:				
Mexico	119,446	19,304	810,988	140,771
Azores	-	-	25,654	5,672
Rumania	-	-	1,251	11,287
Portugal	-	-	12,125	3,500
Canada	-	-	21,317	16,948
Panama	-	-	7,807	1,312
Costa Rica	-	-	5,576	861
British Honduras	4,675	1,134	19,400	4,785
Iran	8,082	84,200	8,082	84,200
Denmark	779	2,287	878	2,548
Other Countries	420	140	922	1,252
Total fish	133,402	107,065	914,000	273,136
Shrimp:				
Guatemala	31,573	15,514	261,748	130,817
El Salvador	78,062	48,922	545,174	341,679
Nicaragua	9,984	5,703	989,856	335,861
Costa Rica	171,136	74,407	498,827	213,235
Panama	230,359	143,128	1,653,529	919,396
Venezuela	402,493	213,835	2,884,921	1,557,257
Ecuador	-	-	12,210	3,440
Mexico	-	-	24,748	9,052
Netherlands Antilles	-	-	3,075	2,722
Honduras	25,200	18,588	25,200	18,588
Argentina	10,519	4,864	10,519	4,864
Total shrimp	959,326	524,961	6,909,807	3,536,911
Shellfish other than shrimp:				
Canada	617	234	224,059	91,114
British Honduras	29,373	18,728	206,585	121,029
Honduras	26,709	22,724	139,712	103,390
Costa Rica	-	-	1,400	1,247
Panama	-	-	1,040	1,011
Jamaica	-	-	30,014	21,324
Netherlands Antilles	11,883	8,621	43,079	28,477
Venezuela	-	-	22,263	13,624
Mexico	14,421	11,522	68,340	45,095
Guatemala	3,000	1,125	11,470	5,715
Leeward and Windward Islands	1,107	436	24,018	9,096
Nicaragua	-	-	1,186	555
Colombia	-	-	1,763	5,110
Ecuador	-	-	1,640	1,152
El Salvador	5,418	4,128	6,249	4,607
Trinidad	-	-	2,338	971
Dominican Republic	3,496	3,480	25,575	23,704
Bahamas	15,900	5,710	17,782	6,547
Other Countries	672	645	1,151	2,217
Total shellfish (excluding shrimp)	112,596	77,353	829,664	485,985
Grand total	1,205,324	709,379	8,653,471	4,296,032

1/Imports into Puerto Rico from foreign countries are considered to be United States imports and are included. But United States trade with Puerto Rico and with United States possessions and trade between United States possessions are not included.
2/When the country of origin is not known, the country of shipment is shown.
3/Gross weight of shipments, including the weight of containers, wrappings, crates, and moisture content.
4/F.o.b. point of shipment. Does not include U. S. import duties, air freight, or insurance.
Note: These data are included in the over-all import figures for total imports, i.e., these imports are not to be added to other import data published.
Source: United States Airborne General Imports of Merchandise, FT 380, October 1962, U. S. Department of Commerce.

Airborne imports of shellfish other than shrimp in October consisted of 104,493 pounds of spiny lobsters from Caribbean and Central American countries, 617 pounds of northern lobsters from Canada, and 7,486 pounds of crab meat from Mexico and the Dominican Republic. Almost 97 percent of the airborne imports of spiny lobsters entered through the Customs District of Florida; the remainder entered through the Customs District of Puerto Rico.

The leading finfish product imported by air in October was 115,726 pounds of fish fillets (mostly from Mexico) all of which entered through the Customs District of Florida.

The data as issued do not show the state of all products--fresh, frozen or canned--but it is believed that the bulk of the airborne imports consists of fresh and frozen products.

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EDIBLE FISHERY PRODUCTS, FEBRUARY 1963:

Imports of fresh, frozen, and processed edible fish and shellfish into the United States in February 1963 were up 4.6 percent in quantity and 10.4 percent in value from those in the previous month. Imports were much heavier in February for frozen albacore tuna (increase mostly from Japan and Western Africa) and canned sardines not in oil (increase mostly from South Africa Republic). Imports were also up for sea catfish fillets, canned tuna in brine, canned sardines in oil, canned oysters, fresh and frozen lobster and spiny lobster, and frozen frog legs. But there was a noticeable decline in over-all imports of fish fillets, frozen tuna other than albacore, and frozen shrimp.

Compared with the same month in 1962, imports in February 1963 were up 7.9 percent in quantity and 6.9 percent in value. Imports were up this February for frozen tuna (increase mostly from Japan, Western Africa, and Peru), canned sardines not in oil, canned oysters, frozen shrimp, and sea scallops. The increase was partly offset by a decline in imports of fish blocks and slabs, canned sardines in oil, canned salmon, and canned tuna in brine.

In the first 2 months of 1963, imports were up 2.4 percent in quantity but down 3.8 percent in value as compared with the same period in 1962. Although the over-all totals were about the same in both years, there was a great deal of fluctuation in individual import items. There was a large increase in 1963 in imports of frozen tuna other than albacore and canned sardines not in oil. Imports were also up for cod fillets, frozen salmon, frozen shrimp, sea scallops, and frozen frog legs. On the other hand, imports were down sharply for frozen albacore tuna, canned tuna in brine, canned sardines in oil, canned salmon, and flounder fillets.

U. S. Imports and Exports of Edible Fishery Products, February 1963 with Comparisons

Item	Quantity				Value			
	Feb.		Jan.-Feb.		Feb.		Jan.-Feb.	
	1963	1962	1963	1962	1963	1962	1963	1962
	(Millions of Lbs.)				(Millions of $)			
Imports:								
Fish & Shellfish: Fresh, frozen & processed 1/	90.6	84.0	177.2	173.0	30.8	28.8	58.7	61.0
Exports:								
Fish & Shellfish: Processed only 1/ (excluding fresh & frozen)	4.2	2.9	7.9	6.4	1.3	1.3	2.9	2.7

1/Includes pastes, sauces, clam chowder and juice, and other specialities.

Exports of processed fish and shellfish from the United States in February 1963 were up 13.5 percent in quantity but down 18.7 percent in value from those in the previous month. In February, there was a large increase in exports of the lower-priced canned squid and canned sardines not in oil, as well as a modest increase in exports of canned mackerel and canned shrimp. But there was a sharp decline in exports of the higher-priced canned salmon.

Compared with the same month in 1962, exports in February 1963 were up 44.8 percent in quantity, but the value of exports was the same in both months. Again, the increase in quantity was due mainly to greater exports of canned squid, canned sardines not in oil, and canned mackerel. From a value standpoint, the increase was offset by a decline in exports of canned salmon.

Processed fish and shellfish exports in the first 2 months of 1963 were up 23.4 percent in quantity and 7.4 percent in value from those in the same period of 1962. Exports of the lower-priced canned squid (principally to Greece and the Philippines) showed the greatest increase. Exports were also up for canned salmon, canned sardines not in oil, and canned shrimp. But there was a modest decline in exports of canned mackerel. Although not covered in the table, exports of frozen shrimp were up sharply in the first 2 months of 1963 (increase mostly in exports to Japan).

* * * * *

EXPORT CREDIT INSURANCE, FIRST QUARTER 1963:

Short-Term Export Credit Insurance: Credit insurance for United States exporters, covering both overseas commercial and political risks, became available on February 5, 1962, through the Foreign Credit Insurance Association (FCIA). In cooperation with the Export-Import Bank of Washington (Eximbank), the FCIA will insure in a single policy both commercial credit and political risks on short term transactions resulting from United States export sales to buyers in friendly foreign countries.

During the first quarter of 1963, FCIA issued 125 new short-term comprehensive policies covering both political and commercial risks on exports on credit terms of up to 180 days. Since the inception of the program, 1,168 such policies have been issued with an aggregate liability of $499.2 million.

Eximbank's new services and modifications in its insurance and guarantee programs, announced on January 11, 1963, included insurance policies on export transactions to cover political risks alone. Under the short-term insurance program for political risks alone, 12 policies with an aggregate liability of $12.7 million were issued during January-March 1963.

Medium-Term Guarantees, Insurance and Credits: Medium-term assistance for credits of from 6 months to 5 years is provided United States exporters on one or more of four bases: (1) guarantees by Eximbank to U. S. financial institutions financing exports without recourse on the exporter, (2) export credit insurance from the FCIA, and (3) guarantees to exporters, or (4) non-recourse financing

directly by Eximbank when the first two methods are unavailable.

(1) Medium-term guarantees to or participations with banks: During the quarter, 132 medium-term comprehensive guarantees were issued to, or participations were entered into by Eximbank with 31 commercial banks which provided non-recourse financing for 82 exporters of shipments valued at $31.6 million to 35 markets abroad. The banks assumed for their own account the commercial risks on the early maturities of these medium-term credits.

(2) Medium-term export credit insurance: During the reporting period, FCIA in partnership with Eximbank issued 98 medium-term comprehensive export credit insurance policies to 66 exporters covering shipments valued at $6.9 million to buyers in 22 markets overseas. A total of 195 such policies have been issued since inception of this program on July 16, 1962.

Under the new medium-term insurance program announced in January 1963 to cover political risk alone, 3 policies were issued to 3 U. S. exporters covering shipments valued at $237,120 to buyers in 3 markets abroad.

(3) Guarantees to exporters: None issued during the quarter.

(4) Non-recourse financing directly by Eximbank: During the first quarter of 1963, 11 participations with commercial banks and exporters were authorized for a total of $1.8 million on shipments with an export value of $4.2 million. (Eximbank Reports, January-March 1963.)

* * * * *

IMPORTS OF FISH MEAL UP SHARPLY IN MARCH 1963:

The March 1963 imports of fish meal by the United States were more than double the average for the month established in 1960-1962. During the first quarter of 1963, U. S. imports of fish meal were 69.6 percent greater than in the same period of the previous year.

Peru supplied 41,120 short tons or 85.9 percent of the United States fish-meal imports in March 1963 and 87,751 short tons or 82.4 percent of the imports in January-March 1963.

U. S. Imports of Fish Meal, First Quarters of 1960-1963

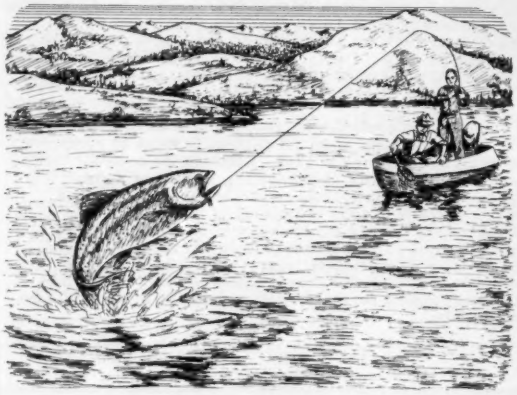
Year	March	Jan.-Mar.
	(Short Tons)	
1963 1/	47,895	106,476
1962	18,528	62,774
1961	20,458	44,333
1960	18,652	35,304

1/Preliminary.
Source: U. S. Bureau of the Census.

Washington

SALMON CATCHES BY SPORTS FISHERMEN GOOD IN 1962:

Catches of salmon by sports fishermen in Washington State during 1962 were good, highlighted by record catches of silver salmon off Westport and the mouth of the Columbia River. Estimates of the State's Department



of Fisheries places the total statewide catch at 598,590 salmon, not including fresh water catches, where insufficient data is available to form catch estimates.

The estimated number of angler trips set a new record of 1,130,717, an increase of nearly 100,000 over 1961.

Silver salmon were available in good numbers from the early-season on--and treated anglers to consistently good fishing. The greatest disappointment of the year occurred in the Strait of Juan de Fuca where chinook salmon catches slumped even lower than in 1960. The silver catch in the Strait, depending chiefly upon the location of schools of feeding fish, was likewise poor. Only those anglers fishing west of Cape Flattery were able to take silvers regularly and this the Neah Bay charter boat anglers did with fine results.

The take of silver salmon at Westport totaled 143,000, more than twice as large as in 1961, with chinook catches of 50,000 the best in the past five years. The silver catch at the mouth of the Columbia totaled 115,900, and chinooks 29,600, for an over-all season average of 1.22 salmon per angler trip. The average at Westport was even better (1.47).

Puget Sound catches were rather ordinary in the light of catches for recent years, but chinook catches rose sharply in November and December 1962. Good survival of the 1960 brood year of chinook, along with favorable weather, appeared to be the primary causes for the late season surge. Total catch in Puget Sound was 193,160 salmon, not large when compared to the 778,755 angler trips for the year.

The oddity of the 1962 season was the unprecedented sport catch of even year pink salmon at Westport and Neah Bay--1,400 at Westport, 430 at Neah Bay. These fish, usually taken in insignificant quantity during even years, may have been part of the tremendous Bella Coola 1962 run.

Wholesale Prices

EDIBLE FISH AND SHELLFISH, APRIL 1963:

Seasonal increases in landings resulting in lower ex-vessel prices for fresh drawn haddock, and lower wholesale prices for fresh and frozen haddock fillets, halibut, and salmon, were largely responsible for the 3.2-percent decline between March and April this year in the wholesale price index for edible fishery products (fresh, frozen, and canned). Compared with the same month a year ago, the wholesale price index this April at 113.6 was 4.5 percent lower due to sharply lower prices in the subgroup indexes for drawn, dressed, or whole finfish, and canned fishery products.

Substantially heavier fish landings at New England ports, principally haddock, together with price declines for other

Table 1 - Wholesale Average Prices and Indexes for Edible Fish and Shellfish, April 1963 with Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices 1/ ($)		Indexes (1957-59=100)			
			Apr. 1963	Mar. 1963	Apr. 1963	Mar. 1963	Feb. 1963	Apr. 1962
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)					113.6	117.3	118.4	118.9
Fresh & Frozen Fishery Products:					117.7	123.0	124.4	117.2
Drawn, Dressed, or Whole Finfish:					106.6	121.2	122.7	119.1
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.08	.12	62.5	91.9	94.6	91.6
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.40	.41	118.3	122.2	125.6	133.1
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.88	.95	122.3	132.7	133.8	120.5
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.70	.68	104.5	100.7	100.7	126.9
Yellow pike, L. Michigan & Huron, rnd., fresh	New York	lb.	.42	.69	68.8	113.0	113.0	139.2
Processed, Fresh (Fish & Shellfish):					127.7	125.5	128.5	120.4
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.32	.39	76.5	94.7	98.3	91.1
Shrimp, lge. (26-30 count), headless, fresh	New York	lb.	1.10	1.07	128.9	125.4	130.7	116.0
Oysters, shucked, standards	Norfolk	gal.	8.00	7.75	134.9	130.7	130.7	130.7
Processed, Frozen (Fish & Shellfish):					114.4	117.3	117.3	108.0
Fillets: Flounder, skinless, 1-lb. pkg.	Boston	lb.	.39	.39	97.6	97.6	98.9	100.1
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.34	.37	99.7	108.5	108.5	96.7
Ocean perch, lge., skins on 1-lb. pkg.	Boston	lb.	.34	.34	117.5	117.5	115.7	115.7
Shrimp, lge. (26-30 count), brown, 5-lb. pkg.	Chicago	lb.	1.04	1.04	122.8	123.4	123.4	112.7
Canned Fishery Products:					106.8	107.7	108.0	122.1
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs.	Seattle	cs.	24.25	24.75	105.7	107.9	107.9	124.2
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs.	Los Angeles	cs.	11.75	11.75	104.4	104.4	104.4	107.9
Mackerel, jack, Calif., No. 1 tall (15 oz.), 48 cans/cs.	Los Angeles	cs.	5.90	5.90	2/100.0	2/100.0	2/100.0	3/118.5
Sardines, Maine, keyless oil, 1/4 drawn (3-3/4 oz.), 100 cans/cs.	New York	cs.	9.06	9.06	116.2	116.2	119.4	164.3

1/Represent average prices for one day (Monday or Tuesday) during the week in which the 15th of the month occurs. These prices are published as indicators of movement and not necessarily absolute level. Daily Market News Service "Fishery Products Reports" should be referred to for actual prices.

2/One commodity has been dropped in the fishery products index as of December 1962--"Sardines, Calif., tom. pack, No. 1 oval (15-oz.), 24 cans/cs."--and replaced in the fishery products index by--"Mackerel, jack, Calif., No. 1 tall (15-oz.), 48 cans/cs." Under revised procedures by the Bureau of Labor Statistics all new products enter wholesale price indexes at 100.

3/Based on Calif. sardines and not directly comparable with new subgroup item (jack mackerel) for January-March 1963.

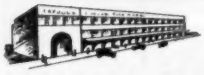
products in the drawn, dressed, or whole finfish subgroup were responsible for a 12.0-percent drop in the index from March to April 1963. Compared with April 1962, the subgroup index this April dropped 10.5 percent because of lower prices for all items except fresh or frozen salmon at New York. From March to April this year, the ex-vessel price for fresh drawn haddock at Boston dropped 32.0 percent. Prices this April also were lower at New York for fresh or frozen dressed halibut (down 3.2 percent), salmon (down 7.8 percent), and yellow pike (down 39.1 percent).

Processing fillets at a New England plant.

Prices for processed fresh fish and shellfish decreased 1.8 percent from March to April this year. Seasonally heavier supplies resulted in a 19.2-percent drop in the price of fresh haddock fillets at Boston, but prices were higher at New York for fresh shrimp (up 2.8 percent), and prices for fresh shucked oysters this April increased 3.2 percent because of limited supplies. Compared with the same month a year earlier, the subgroup price index this April was up 6.1 percent. Lower prices for fresh haddock fillets this April as compared with the same month in 1962 were offset by higher prices for fresh shrimp and shucked oysters.

The April 1963 processed frozen fish and shellfish subgroup price index was down 2.5 percent from the previous month, but rose 5.9 percent from the same month of 1962. The lower subgroup index from March to April was principally due to lower prices for frozen haddock fillets (down 8.1 percent) although a slight price drop for frozen shrimp (down 0.5 percent) at Chicago also occurred. As compared with the same month a year ago, prices this April advanced for all products except frozen flounder fillets which were lower by 2.5 percent.

The canned fishery products subgroup index at 106.8 percent of the 1957-59 average dropped 0.8 percent from March to April 1963. Most of the canned fish products remained at the March price level but canned pink salmon prices (down 2.0 percent) dropped for the first time since the beginning of the year. Compared with the same month a year ago, the subgroup index this April was lower by 12.5 percent. Stocks from the 1962 canned pack of Maine sardines and Pacific salmon were liberal this April and prices for some items were sharply lower--canned Maine sardines (down 29.3 percent) and canned pink salmon (down 14.9 percent). In addition, canned tuna was lower by 3.2 percent due to unsettled market conditions.



International

FISH MEAL

PRODUCTION AND EXPORTS FOR SELECTED COUNTRIES, JANUARY 1963:

Member countries of the Fish Meal Exporters' Organization (FEO) account for about 90 percent of world exports of fish meal. The FEO countries are Angola, Iceland, Norway, Peru, and South Africa/South-West Africa.

Production and Exports of Fish Meal by Member Countries of the Fish Meal Exporters' Organization, January 1963

Country	January 1963		Jan.-Dec. 1962	
	Production	Exports	Production	Exports
	(Metric Tons)			
Angola	2,596	2,893	32,758	32,558
Iceland	9,476	9,121	96,147	70,931
Norway	3,659	8,187	120,927	61,690
Peru	145,659	147,236	1,120,796	1,065,952
South Africa (incl. S. W. Africa)	9,800	6,755	201,219	192,931
Total	171,190	174,192	1,571,847	1,424,062

In January 1963, Peru accounted for 84.5 percent of total fish meal exports by FEO countries, followed by Iceland with 5.2 percent, Norway with 4.7 percent, South Africa with 3.9 percent, and Angola with 1.7 percent. (Regional Fisheries Attache for Europe, United States Embassy, Copenhagen, April 5, 1963.)

FOOD AND AGRICULTURE ORGANIZATION

FISHERIES INCLUDED IN AGENDA OF WORLD FOOD CONGRESS:

The United States Congress, in Public Law 87-841 of October 18, 1962, authorized the United States to host the Food and Agriculture Organization's (FAO) World Food Congress in Washington, D.C., June 4-18, 1963. This will be a major event in FAO's worldwide Freedom From Hunger Campaign and will highlight present and future world food problems. A ceremony will also be held to commemorate the founding of FAO at Hot Springs, Virginia, in 1943. The United States will issue a joint Freedom from Hunger/Food for Peace commemorative stamp in June 1963 to coincide with the World Food Congress opening.

The President of the United States has appointed the trustees of the American Freedom From Hunger Foundation to serve as a Citizen's Host Committee for the World Food Congress. The Host Committee will work with a Government Committee on arrangements for the delegates who will be attending the Conference. The Citizen's Host Committee has four principal subcommittees. One is a Travel and Fellowship Subcommittee which plans to raise funds to assist in financing the travel and attendance of representatives from developing countries who otherwise would not be able to participate. Another is the Tours and Plant Visit Subcommittee (nonfund raising) to arrange for tours and visits to agricultural, forestry, and fisheries areas, and private industrial plants. A third is the Communications Subcommittee to work on preconference publicity within the United States. The fourth is a Hospitality Subcommittee to meet incoming delegates and assist them during the Congress.

The World Food Congress is scheduled to open with the usual Plenary Session and is divided into four Commissions: (1) Technical Commission; (2) Economic and Social Commission; (3) Education and Research Commission; and (4) Commission for People's Involvement and Group Action.

Fisheries will be given consideration by each of those Commissions. One of the major items, for example, on the agenda for the Technical Commission will be "Nutritive Diets for Poorly Fed Peoples." This agenda item on nutrition is further divided into: (1) Animal and poultry production; (2) Fisheries; and (3) Cultivation of legumes, fruits, and vegetables.

Guidelines given for the agenda subitem on fisheries are as follows:

"The development of fishery resources and production assumes a special significance in the context of increasing pressure on land. The collection and dissemination of oceanographic and biological data and the steps to be taken for it are important in this connection. Inland possibilities form a separate study. Possible levels of yield with improved techniques and combination with other land uses have to be studied. The combination of fish-farming with irrigated agriculture is an example. The transport of sea food to inland areas raises many technical and economic problems."

INTER-AMERICAN TROPICAL TUNA COMMISSION

LOWER QUOTA FOR YELLOWFIN TUNA CAUGHT IN EASTERN PACIFIC PROPOSED:

The Inter-American Tropical Tuna Commission (United States, Costa Rica, Ecuador, and Panama) at the April 16-17, 1963 meeting held in Panama, Republic of Panama, closed its session with the following Resolution:

Having reviewed its previous findings and recommendations respecting the need to curtail the catch and effort for yellowfin tuna in the Eastern Pacific Ocean, in order to restore the population of that species to a level where maximum sustainable catches may be again obtained,

Having considered the additional statistics of catch and effort, and other information for the year 1962, and

Observing that the studies of its scientific staff indicate that the yellowfin population remains substantially below the level of abundance corresponding to maximum sustainable yield, that a prudent estimate of the sustainable yield to be expected during 1963 is that it will not exceed 81,000 short tons.

Recommends to the High Contracting Parties that they take joint action as follows:

International (Contd.):

(1) Establishment of a catch-limit (quota) on the total catch of yellowfin tuna by fishermen of all nations of 81,000 tons during calendar year 1963, from the area previously defined in the Resolution adopted by the Commission on May 17, 1962.

(2) Reservation of 2,000 tons of this yellowfin tuna quota for allowance for incidental catches when fishing for other species, such as skipjack and big-eye tuna, after the closure of unrestricted fishing for yellowfin tuna.

(3) Opening of the fishery for yellowfin tuna on January 1, 1963; during the open season vessels should be permitted to depart from port with permission to fish for any tuna species, including yellowfin, without restriction on the quantity of any species, until the return of the vessel to port.

(4) Closure of the fishery for yellowfin tuna during 1963 at such date as the quantity of tuna already landed plus the expected catch of yellowfin tuna by vessels which are at sea with permits to fish without restriction reaches 79,000 tons.

(5) After the date of closure of the fishery for yellowfin tuna, vessels should be permitted to leave port with permission to fish only for other species of tuna than yellowfin tuna; but any vessel operating under such permission should be allowed to land not more than 15 percent by weight of yellowfin tuna among its catch on any voyage. This limitation should apply to each and every trip on which the vessels depart with permission to fish only for other species of tuna than yellowfin tuna, even though the vessel does not return to port from such a trip until after the end of the calendar year 1963.

(6) Such action as may be necessary to obtain the cooperation of those Governments whose vessels operate in this fishery, but which are not parties to the Convention for the Establishment of an Inter-American Tropical Tuna Commission, in effecting these conservation measures.

At the May 1962 meeting of the Commission held in Quito, Ecuador, an over-all quota for the Eastern Pacific area extending off the coast of North and South America between Eureka, Calif., and 30° S. latitude, a catch quota of 83,000 short tons was recommended.

INTERNATIONAL COOPERATIVE INVESTIGATION OF THE TROPICAL ATLANTIC

GUINEAN TRAWLING SURVEY:

The International Cooperative Investigations of the Tropical Atlantic (ICITA) will include a trawling survey in the Gulf of Guinea to assess the qualitative and quantitative composition of exploitable fish stocks. This phase of ICITA will be directed by the Commission for Technical Cooperation in Africa, South of the Sahara (CCTA/CSA).

The first meeting of the Scientific Committee for the Guinean Trawling Survey was held in Lagos, Nigeria, on March 18-19, 1963. At that time, the Committee announced plans for the survey as follows:

The survey will be divided into two operational phases: Guinean I (August 15-December 15, 1963) and Guinean II (February 15-June 15, 1964). The timing of the campaign has been designed as near as possible to coincide with the hydrographic seasons in the area.

The northern boundary of the survey area will be Cape Roxo, Portuguese Guinea, and the southern boundary will be the mouth of the Congo River.

The survey will be conducted on two chartered French vessels. Both vessels are side trawlers, about 35 meters (115 feet) in length, with main engines developing 600 horsepower.

A transect interval of 40 miles will be used in exploratory fishing operations. Within each transect, 8 stations will be occupied at depth intervals up to 110 fathoms. When possible, trawling will also be attempted between 220 and 330 fathoms. Hydrographic observations will be taken during the survey.

The Scientific Committee for the Guinean Trawling Survey plans to hold its next meeting in Abidjan, Ivory Coast, during March 1964.

Note: See Commercial Fisheries Review, November 1962 p. 59, August 1962 p. 56, and June 1962 p. 33.

NORTH PACIFIC FISHERIES CONVENTION

JAPANESE VIEWS ON REVISION OF CONVENTION:

On April 15, 1963, an authoritative Japanese economic daily carried the following report on preparation by Japanese Governmental agencies for talks on revision of the International North Pacific Fisheries Convention.

"The Ministry of Agriculture and Forestry and Fishery Agency will begin full scale study this week on the problem of revising the Japan-United States-Canada Fishery Treaty which is scheduled to expire in June. From the standpoint of freedom of the high seas and fair distribution of resources in the high seas, Japan will argue for a fundamental revision of this treaty and strongly ask for the abolition or relaxation of 'voluntary restrictions' (virtually a ban) on Japanese fishing for North American salmon, halibut in the Gulf of Alaska, and Canadian herring. Contrarywise the United States and Canada intend that the existing treaty be extended without modification. With the commencement of negotiations close at hand, the countries concerned are actively preparing for the conference. President Kennedy has already announced that the United States 'cannot allow voluntary restrictions be relaxed.' It would appear, therefore, there is the great likelihood that negotiations will have hard sailing and turn into a big political issue.

"The fisheries negotiations are to be started in early June, either in Washington or Tokyo. Japan is scheduled to appoint Ambassador Takeuchi of the Japanese Embassy, Washington, as head of the delegation assisted by Director of Fishery Agency Shono and other advisors and experts.

"The Japanese Government regards the abolition or relaxation of voluntary restrictions its principal objective in the forthcoming negotiations. Minister of Agriculture and Forestry Shigemasa has announced during the current Diet session that the Government will endeavor to meet this objective. Japan will press for the abolition or relaxation of voluntary restrictions because:

International (Contd.):

"(1) In the expansion of Japanese salmon mothership fisheries, catches have increased over pre-war days. As a result of this expansion, it has become possible for Japanese motherships to catch a considerable amount of red salmon of Bristol Bay origin. This situation was not anticipated at the time of the signing of the present treaty.

"(2) The present treaty banned salmon fisheries on the high seas east of 175 degrees west longitude. Later it became clear that North American salmon were distributed over a far greater area than was expected at the time of the conclusion of the treaty.

"The biggest question is the extent of intermingling of Asian and North American salmon. The result of joint research conducted by the three countries reveals that the western limit of distribution of North American salmon (red salmon) is at about 168 degrees east longitude and the western limit of distribution of Asian salmon (chum salmon) is 153 degrees west longitude or east thereof. Thus the scope of movement of these two species of salmon extends from the seas off Kamchatka to the Gulf of Alaska. As a matter of fact, Japan is catching red salmon of North American origin in Area A, an area established by the Japan-Soviet Fisheries Convention and described as waters north of 45 degrees north latitude and west 175 degrees west longitude. According to United States data, 15 million red salmon moved into this area in 1962 and Japan caught a considerable portion (about 20%) of these fish. If such is the case, voluntary restrictions provided for in the tripartite treaty involve contradictions.

"Japan recognizes that the present treaty has been an asset for the stabilization of North Pacific fisheries during the past decade. Japan holds, however, that voluntary restrictions have lost their significance both in theory and in practice and therefore must be repealed or relaxed. The United States on the other hand contends that the red salmon resource has a great bearing on the economic development of Alaska and the Pacific Northwest States and that by conservation practices has endeavored to maintain the resources. The United States maintains that if Japan is allowed to fish for red salmon on the high seas with fishing gear and methods alien to United States nationals, conservation measures which the United States has had in effect for many years will be nullified in a brief space of time. It is anticipated, therefore, that the United States and Canada may propose that the provisional abstention line located at 175 degrees west longitude be moved west by about five degrees to protect salmon of North American origin.

"(3) The principle of voluntary restriction which Japan accepted under the present convention has never gained international recognition. The United States made every effort to have the principle accepted as part of international law, first at the Rome Conference in 1955, then at the meeting of the International Law Committee in 1956, and finally at the Law of the Sea Conference in 1958. At all of these conferences, the American proposal was defeated because of opposition raised by advanced fishing countries.

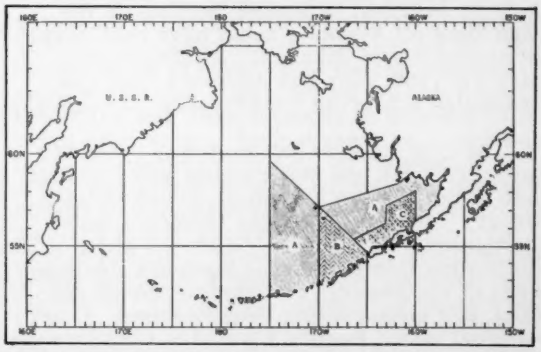
"For many years, Japan has been endeavoring to eliminate the principle of abstention from the convention. So far, however, only abstention of fishing for herring, and halibut in the Eastern Bering Sea has been lifted. It is expected that Japan will meet strong resistance from the United States and Canada in its attempt to abolish restrictions on fishing for red salmon since red salmon are considered the most important resource of the two countries. In the United States there is growing opinion in congressional and Pacific Coast fisheries circles that the present United States-Canada-Japan Fisheries Convention should be modified to include the Soviet Union in order to curb the activities of the U.S.S.R. in the North Pacific fisheries. Also, such action would enable the United States and the Soviet Union to act in concert to assert greater pressure upon Japan's offshore fisheries." (United States Embassy, Tokyo, April 23, 1963.)

INTERNATIONAL NORTH PACIFIC FISHERIES COMMISSION

JAPAN GAINS NEW HALIBUT AND HERRING FISHING GROUNDS IN EASTERN PACIFIC:

On May 8, 1963, the Canadian Government announced approval of recommendations to give Japanese fishermen the same rights as fishermen of the United States and Canada to fish for halibut in the waters of the eastern Bering Sea. The recommendations were made in November 1962 by the International North Pacific Fisheries Commission, whose members represent Canada, Japan, and the United States. Since the Governments of Japan and the United States had already approved the Commission's recommendations, they took effect as of May 8.

Although this action opened the halibut stocks of the eastern Bering Sea to certain types of Japanese fishing gear, the Japanese are barred from keeping any halibut taken in those areas which still come under the abstention provisions of the North Pacific Treaty. In addition, the new Bering Sea halibut regulations included the conservation arrangements approved at the Commission's interim meeting in Tokyo in February 1963. Those joint conservation measures are particularly significant in respect to the heavily fished "Triangle Area" where a total 1963 catch quota of 11 million pounds was agreed upon.



Bering Sea halibut conservation areas, 1963. No retention of halibut by trawlers in Areas A and B. No trawling in Area C. Halibut quota 11,000,000 pounds in Area B, using longlines only.

Other conservation measures include a minimum halibut size limit of 26 inches or a minimum weight of 5 pounds. Only long-line gear may be used to take halibut in a very large portion of the eastern Bering Sea. Japanese

International (Contd.):

trawlers which catch bottomfish in the region may not retain any halibut taken in their nets in areas "A" and "B" (chart). In addition, trawling is completely prohibited in a large area north of the Alaska Peninsula where young halibut are found.

The Commission has established a program of research for the groundfish stocks of the Bering Sea on behalf of Canada, Japan, and the United States. Data on all bottom-fishing operations in the entire Bering Sea by the three countries flow to Commission headquarters for study and for use in preparation of conservation recommendations for future years. Requests have been made to the Soviet Union for similar data from their fishing fleets in the region.

Japanese vessels also gained the right to fish for herring outside of Canadian territorial waters off the west coast of the Queen Charlotte Islands. The recent approval of the Commission's recommendations placed those herring stocks in the same category as stocks of herring off Alaska, which have been accessible to Japanese fishermen since 1960.

Removal of the herring stock off the west coast of the Queen Charlotte Islands from abstention does not necessarily mean that Japanese fishermen will come to the area to fish for herring. Although herring on the high seas off Alaska's coast have been legally accessible to Japanese fishermen since May 24, 1960, only one Japanese fleet has attempted a herring fishery, with no success.

The Commission has prepared plans for joint research and observation which will go into effect in case any multi-nation herring fishery develops in waters formerly under abstention. Data will be collected which will enable the Commission to measure the progress of the fishery, the effect on other species, and conservation requirements. (International North Pacific Fisheries Commission, Vancouver, May 9, 1963.)

Note: See Commercial Fisheries Review, March 1963 p. 42.

NORTHWEST ATLANTIC FISHERIES COMMISSION

BOTTOMFISH SPAWNING AND DEVELOPMENT IN NORTH ATLANTIC TO BE STUDIED:

France, Scotland, England, Norway, Denmark, the Soviet Union, West Germany, Canada, and Iceland plan to participate in a research expedition to study the drift of fish eggs, such as cod, and the habits and development of the fry produced by ocean perch in the North Atlantic. The main area of study will be between Iceland and Greenland, near Western Greenland, and near Newfoundland. Twelve vessels were to be used in the study which will be coordinated by the International Northwest Atlantic Fisheries Commission. The survey was scheduled to begin in June 1963. (United States Embassy, Reykjavik, April 5, 1963.)

INTERNATIONAL NORTHWEST PACIFIC FISHERIES COMMISSION

JAPAN AND U.S.S.R. REACH AGREEMENT ON NORTHWEST PACIFIC SALMON CATCH QUOTAS:

On April 4, 1963, the International Northwest Pacific Fisheries Commission (Japan-U.S.S.R.) reached an agreement on Japan's salmon quota for 1963. The over-all quota for Areas A and B was set at 120,000 metric tons. Area A includes the waters to the north of 45° N. latitude (present treaty waters) and Area B the waters to the south of 45° N. latitude. The following regulations will apply to the two areas in 1963:

Quotas: Area A--57,000 metric tons, an increase of 2,000 tons or 3.6 percent over the 1962 quota of 55,000 tons. Area B--63,000 metric tons, an increase of 3,000 tons or 5 percent more than the 1962 quota of 60,000 tons.

The 11 salmon motherships and 369 catcher vessels permitted to operate in the North Pacific salmon fishery in 1963 are unchanged from 1962.

The Soviet Union and Japan on March 4, also reached an agreement on the 1963 Okhotsk Sea king crab production quota--630,000 cases (48 6.5-oz. cans) of which the Soviet Union's share is 252,000 cases and Japan's share 378,000 cases.

Items remaining for the Commission's consideration on March 4 were: (1) 1964 salmon catch quotas; (2) enforcement of regulations in Area B; and (3) exchange of scientists.

SWEDISH-NORWEGIAN SHRIMP FISHING AGREEMENT EXTENDED THROUGH 1964

Representatives of Norway and Sweden proposed in early 1963 to terminate the Nor-

International (Contd.):

wegian-Swedish shrimp fishing agreement after a transition period of two years. The Norwegian Parliament on March 28, 1963, approved the proposed 2-year respite for Swedish shrimp fishermen.

The original agreement signed in 1950 had given Swedish shrimp fishermen the right to fish in a specified deep-water area (about 4 nautical miles wide and 17 miles long) in Oslo Fjord until January 1, 1956. Although small, the area is an exceptionally rich fishing ground. Norwegian fishermen were correspondingly permitted to fish in certain areas off the west coast of Sweden. The agreement was to be automatically renewed each year thereafter if neither country gave notice of cancellation.

On June 15, 1962, the Norwegian Government, pressed by domestic fishing organizations, decided to terminate the shrimp fishing agreement as of January 1, 1963. Negotiations between the Swedish and Norwegian Governments, however, resulted in the proposal to continue the fishing rights under the agreement until the end of 1964.

In explaining the actions of their government, Norwegian representatives said that the area within the Norwegian fisheries boundary affected by the agreement is of greatest importance to the Norwegian fishermen in Oslo Fjord, while the compensation area off the Swedish west coast is of only small importance to Norway. It is thought that Swedish fishermen were granted the 2-year transition period because of Norway's need for Swedish support for various policies within the European Free Trade Association (EFTA).

Neither Swedish nor Norwegian fishermen were satisfied with the termination arrangements. Norwegian shrimp fishermen had pressed for immediate cancellation of Swedish fishing rights in the area. On the other hand, the Swedish fishermen who have operated in the area will be subject to the economic strain of adapting their vessels to new conditions.

At present, there are approximately 1,000 Swedish fishermen with about 300 vessels engaged in shrimp fishing. Their total shrimp landings were valued at Kr.18.5 million (US$3,570,000) in 1961. About 200 Swedish fishermen with some 70 vessels are affected by the new proposals, and the value of their shrimp landings has been Kr. 7-8 million ($1,351,000-$1,544,000) annually. The vessels used by those fishermen are between 40 and 48 feet long and are valued at about Kr. 100,000 ($19,297) each. In order to continue shrimp fishing, the fishermen involved must move to more distant waters requiring vessels of about 60 feet in length and costing Kr. 350,000-400,000 ($67,541-$77,190) per vessel. Since there is no market for the old vessels, each replacement will require a large investment in the transition period.

It has been mentioned in Sweden that within the scope of the Scandinavian cooperation it would be possible to make the waters of the Skagerrak-Kattegat a fisheries inland sea for fishermen of Denmark, Norway, and Sweden. Furthermore, if a common Scandinavian market would be gained through the EFTA, all fishermen from participating countries might have equal fishing rights in the area. (United States Consulate, Goteborg, March 28, 1963, and United States Embassy, Oslo, April 9, 1963.)

Note: Swedish kronor 5.182 equals US$1.00.

EUROPE

WEST EUROPEAN FISHERY CONFERENCE TO MEET IN ESBJERG:

The West European Fishery Conference will meet in Esbjerg, Denmark, on September 11-12, 1963, according to present plans. The organization is made up of fishing industry representatives from various West European countries who meet annually to discuss fisheries problems. The last meeting, which was held in Goteborg, Sweden, on September 8, 1962, was attended by 42 delegates. Between 60 and 70 delegates are expected to attend the Esbjerg meeting from Norway, Sweden, the United Kingdom, West Germany, The Netherlands, Belgium, France, Spain, Portugal and Denmark. The agenda for the Conference was to be prepared at a meeting of the secretariat and representative delegates in Copenhagen during June 1963. (United States Embassy, Copenhagen, May 1, 1963.)

Note: See Commercial Fisheries Review, December 1962 p. 56.

Aden Protectorate

MUKALLA IS CENTER OF FISHERIES DEVELOPMENTS:

An officer of the United States Consulate in Aden late in February 1963 visited the City of Mukalla which is the capital of Quai'ti State (the paramount Sultanate of the Eastern Aden Protectorate) and the second largest city of the entire Aden Protectorate. His visit is of some interest to the United States fishing industry because of recent developments toward establishing fisheries and processing facilities in Aden for both tuna and spiny lobster. He describes the Mukalla city area as follows:

Fronting directly on the Indian Ocean and backed by a 1,000-foot rock hill, Mukalla is long and narrow with entrances only to the east and west along the coast. Toward the eastern end of the town is a point jutting out into the sea which contains the customs pier (the only pier), the Secretariat (housing the Administration of the Quai'ti Sultanate), the Eastern Bank, the trading companies, and miscellaneous residences. A mile or so to the east along a road which clings to a sheer cliff is the office of the Deputy Fisheries Officer. The fishing vessel yards, the fish-drying areas, and the wholesale fish market are concentrated there.

There is some evidence that modernization of the Eastern Aden Protectorate fishing industry will some day take place in that area. A New York City firm is putting in a small sharp freezer for spiny lobster and the British Commonwealth Development Fund is building a large freezer and cold-storage plant for tuna. (United States Consul, Aden, March 30, 1963.)

Angola

FISHERIES TRENDS IN MOCAMEDES AREA, 1962:

In its report the 1962, Mocamedes Fishing Industry Guild comments on the problems besetting the various products processed by the Mocamedes industry during 1962. Dried fish production, for example, was limited during the year by a severe lack of warehousing. Steps to alleviate this problem are being taken, says the report, by the Angolan Fishing Industry Institute which has purchased a site for extensive warehouse facilities in Mocamedes which are expected to be in construction during the current year. Fish meal and oil production, says the report, was severely curtailed by the over-all scarcity of fish in the Mocamedes area as well as by the high cost of Diesel fuel and jute bags. The Guild, claims the report, has devoted considerable effort to obtaining a reduced price for Diesel fuel used by the industry. So far, their efforts in this respect have been unsuccessful. The Guild has also been unsuccessful in obtaining licenses for importing Pakistan jute sacking which is 95 percent cheaper than the local protected industry product. Canned fish output, principally tuna, was limited by the organization of the canning industry which, in the Mocamedes area, consists of 9 small units operating at the "artisan" level. What is needed, states the Guild report, are additional credit facilities provided by the State to permit the canning industry to reorganize and re-equip. Also to enable it to overcome its current dependency on the credit facilities provided by local distributors who supply materials on credit at very high prices and purchase the output of the canning industry at lower than world prices for export. Commenting on the technology of the local industry, the report noted that the limitation on the activity of the fishing fleet brought about by the lack of such equipment as electronic fish-finding devices, refrigerated holds, etc., results in a sporadic supply of fish and, on the part of processing facilities, short uneconomical periods of operation interspersed with long periods of inactivity. The report closed with the following comments on the nature of State aid so far received by the Mocamedes industry:

"The problems of the Angolan fishing industry and particularly that of the District of Mocamedes reside fundamentally in the sector of production and not in the sector of marketing. . . . Giving primacy to marketing which ought to be considered secondary has given the industry a low index of productivity. Along with it is an. . . anachronous fiscal system has not permitted the industry to capitalize sufficiently in order to renovate itself and to evolve more rational forms of exploitation. . . . If we add to this an absolute lack of technical assistance and orientation we will have explained in a few words the actual structure; aggravated, undoubtedly, by an excessive individualism common to most Portuguese.... The so-called technicians who have come here at the order and expense of the State to analyze and resolve the problems of the fishing industry have not viewed the problem from this angle. Instead of studying and resolving

Angola (Contd.):

the problems of production in accordance with the realities constituted. . . by industrial concentration. . ., they gave priority to the problems of marketing. . . . Precious, irrecuperable time was lost without doing anything with regard to industrial reorganization. The fishing industries are fully aware of their needs and know perfectly well the indispensable measures for the solution of their problems. . . the help of the State, the only entity capable of supplying the necessary means, is indispensable." (United States Consul, Luanda, April 18, 1963.)

Australia

OCEANOGRAPHIC DATA CENTER TO BE ESTABLISHED:

Approval to establish an Oceanographic Data Center has been received by the Australian Hydrographic Office. The Hydrographic Office plans to begin organizing the Data Center in July 1963 and have electronic data processing equipment in use by 1966. (U. S. National Oceanographic Data Center, Newsletter, March 31, 1963.)

Brazil

NEW FISHERY COOPERATIVE FORMED IN PARANA STATE:

In mid-February 1963, the newly formed Parana Coastal Fishermen's Cooperative began supplying fishery products to Curitiba. As a result, fish prices in the city dropped by an average of 35 percent. The Cooperative maintains a 10-ton cold-storage warehouse in Curitiba. The Parana State Bank and CODEPAR (the State's economic development and investment company) are giving advice and assistance to the Cooperative, which presently consists of approximately 2,400 fishing enterprises and individual fishermen. (United States Consulate, Curitiba, March 19, 1963.)

Canada

BRITISH COLUMBIA ADOPTS RESOLUTIONS ON TERRITORIAL WATERS AND FISHERIES CONVENTION AMENDMENTS:

A report filed in the British Columbia Legislative Assembly by the Special Committee on Fisheries recommended to the Assembly that ratification of amendments to the North Pacific Fisheries Convention be delayed and that a twelve-mile fisheries limit be established. The report was approved by the Assembly on March 26, 1963, and resolutions on both subjects have been forwarded to the Government of Canada in Ottawa for consideration.

The Report of the Special Committee appointed to examine and inquire into certain matters affecting the commercial fishing industry in British Columbia, and the resolutions adopted by the Legislation follow:

Your Special Committee appointed to examine and inquire into certain matters affecting the commercial fishing industry in British Columbia begs leave to report as follows:

Your Committee held five meetings and heard submissions from individuals representing the following organizations: The United Fishermen's and Allied Workers' Union; the British Columbia Federation of Labor; the Fisheries Association of British Columbia; the Pacific Trollers' Association; the Amalgamated Conservation Society; and the British Columbia Federation of Fish and Game Clubs.

Your Committee noted a broad difference in viewpoints between various sections of the commercial fishing industry respecting ratification of certain amendments to the International North Pacific Fisheries Convention. Nevertheless, all sections of the industry expressed grave doubt that commercial fishing on the high seas was in the best interests of proper conservation, and the principle of sustained annual productivity. It was also noted that all countries had a vested interest in those fish originating within their respective territorial boundaries, which accounted for the extensive research and conservation programmes being carried out by each of the participating nations.

Your Committee noted further that a lack of research data precluded an intelligent appraisal of the future effect of a herring fishery off the west coast of the Queen Charlotte Islands.

In view of these circumstances your Committee recommends that the following resolution be forwarded to the Government of Canada:

Whereas a Special Committee of the British Columbia Legislature was appointed to examine and inquire into certain matters affecting the commercial fishing industry and those employed therein; and

Whereas that Committee subsequently met with principal organizations representative of that industry; and

Whereas there was general agreement among submissions made to the Committee that serious doubt existed that a wholesale commercial fishery on the high seas was in the best interests of proper conservation and the principle of sustained annual productivity; and

Whereas extensive research and conservation programmes were being carried out by each of the participating na-

Canada (Contd.):

tions of the convention, particularly concerning those fish in which the respective countries had a vested interest as originating within their respective territorial boundaries; but

Whereas no research data was available from which to form an opinion as to the effect of a future Japanese herring fishery off the west coast of the Queen Charlotte Islands on immature salmon stocks;

Therefore Be It Resolved That the Government of Canada give consideration to receiving representations from all segments of the British Columbia fishing industry prior to the ratification of amendments to the convention now under study; and

Be It Further Resolved, That an immediate research programme be instituted to ascertain the future effect of a Japanese herring fishery off the west coast of the Queen Charlotte Islands on British Columbia herring quotas and immature salmon stocks.

Your Committee also noted basic agreement by all segments of the industry with the pressing need to amend the now obsolete three-mile limitation of Canada's territorial waters. All submissions advocated a straight baseline drawn from headland to headland of British Columbia's outer coastline, and to provide protection for Canadian fisheries for a distance of twelve miles to seaward in support of the arguments offered. As a result thereof your Committee further recommends that another resolution containing this request be forwarded to the Government of Canada, as follows:

Whereas precedent exists whereby nations have established the width of their territorial seas; and

Whereas the present three-mile limit is inadequate for the protection of Canadian fisheries;

Therefore Be It Resolved, That Canada take unilateral action to establish a headland to headland baseline along its outer coastal shoreline as recommended jointly by Canada and the United States of America at the 1960 United Nations Conference on the Law of the Sea; and

Be It Further Resolved, That Canada, while recognizing reciprocal fishing rights with the United States of America, declare exclusive fishing rights for a distance of twelve miles to seaward of that baseline; and

Be It Further Resolved, That upon such declaration, Canada be prepared to enforce such measures. (United States Consul, Vancouver, April 3, 1963.)

* * * * *

FISHERIES PROBLEMS OF MARITIME PROVINCES DISCUSSED AT MEETING:

Fisheries problems affecting Canada's east coast were discussed in April this year at the Fifth Annual Meeting of the Federal-Provincial Atlantic Fisheries Committee. The Committee is made up of deputy ministers with responsibility for fisheries in the federal and the five Atlantic provincial governments. The meeting was opened by the Deputy Minister of Fisheries of Canada, as chairman.

At the April 25 session, the subjects covered included the programs of the Atlantic Development Board, the Agricultural Rehabilitation and Development Act, and marine works in relation to fisheries. Later discussions dealt with the Atlantic program of the Fisheries Research Board of Canada; the program of the federal Department's Industrial Development Service; deep sea fleet development; vocational training; provincial programs; fishing gear and vessel technology; fisheries inspection; international regulations; the territorial waters question; fishing vessel subsidies; and the results of investigations made by the two special sections of the committee, one dealing with salmon and trout, the other with oysters.

Members of the committee present at the meeting or their representatives, in addition to the Deputy Minister of Fisheries, were the Deputy Minister of Fisheries of New Brunswick; the Deputy Minister of Trade and Industry of Nova Scotia; the Deputy Minister of Fisheries of Newfoundland; the Deputy Minister of Fisheries of Prince Edward Island; and a representative of the Assistant Deputy Minister (Fisheries), Department of Industry and Commerce of Quebec, Ont.

* * * * *

APPROVAL OF JAPANESE HALIBUT FISHING IN EASTERN BERING SEA DELAYED:

It has been rumored that the Canadian Commissioners of the North Pacific Fisheries Commission would resign if Canada does not accept their recommendations that the Japanese be permitted to fish in the East Bering Sea. The Commissioners have withheld comment on the rumor, but one of the Commissioners is reported by the press to have stated "it will be a vote of nonconfidence in the Commission. We are mighty unhappy about the situation which has put us in a very embarrassing position. The Canadian Government must ratify the treaty soon, as it has only one year to go and the Japanese could give notice in June for negotiation of a new treaty. We of the Commission are concerned for the future preservation of fishing in the East Bering Sea for another 10 or 15 years. We don't want to have to negotiate another treaty."

These remarks were undoubtedly prompted by the statement made by the Canadian Prime Minister in an election campaign speech in Victoria, B. C., on March 25, 1963, that Canada was not rushing to sign the North Pacific Fisheries Agreement to allow Japanese fishermen to fish halibut in the East Bering Sea

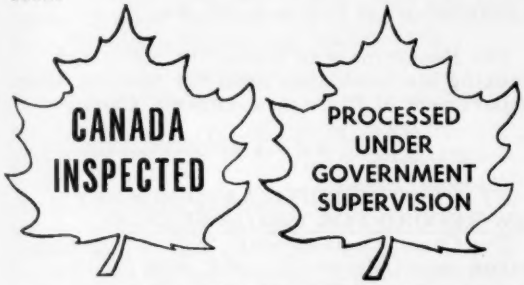
Canada (Contd.):

and wants to make certain that Canada's fishermen are protected. (United States Consul, Vancouver, April 4, 1963.)

* * * * *

PROCESSED SCALLOP PRODUCTS SUBJECT TO COMPULSORY GOVERNMENT INSPECTION:

The Department of Fisheries of Canada now requires compulsory inspection for processed scallop products. The regulations apply to frozen scallops as well as breaded cooked scallops. Fresh (iced) scallops have been subject to compulsory inspection since 1961.



Inspected frozen fish is labeled "Canada Inspected" and inspected fresh fish is labeled "Processed Under Government Supervision."

The scallop fishery of the Canadian Maritime Provinces has grown rapidly in recent years. In order to insure that only top quality scallops reach the consumer, the Department of Fisheries has established standards for freshness, processing facilities, and packaging. In 1960, the bulk of the scallop production was marketed in the fresh state, but since then there has been considerable development in the production of frozen and breaded cooked scallops.

The new regulations also establish the maximum amount of breading and batter that can be used on scallop meat. The proportion is similar to that which was established for fish sticks several years ago.

The standards for plants processing scallops are identical to those set for other fish-processing plants under Canadian Government Specifications Board requirements for certification. Scallops either in the fresh or frozen form which are of the highest quality--those which are graded No. 1--may be stamped with the "Canada Inspected" designation. (Trade News, March 1963, Canadian Department of Fisheries.)

* * * * *

IMPORTS OF OCTOPUS FOR HALIBUT BAIT INCREASE:

Almost a million pounds of frozen octopus from Japan and Korea were in Prince Rupert cold-storage houses early in March this year awaiting the beginning of the halibut season. For the 75 halibut fishing vessels out of this port, it is the most prized bait.

A total of 11,000 cartons of 50 pounds each of chopped up, frozen octopus were unloaded on March 2-3 from the Japanese freighter Yamakiku Maru.

These 50-pound cartons of frozen octopus are part of a 550,000-pound shipment unloaded in Prince Rupert early this month. The chopped-up frozen octopus is sold to fishermen for 32 to 34 cents per pound.

The season's needs of the Prince Rupert Fishermen's Cooperative, about 300,000 pounds, had already arrived by rail from Vancouver. It had been purchased in Korea. This represents a substantial increase from the 60,000 pounds imported by the Cooperative from Korea in 1962. Skinned before freezing, the Korean product has the advantage of saving time and labor at this end.

Purchasing of octopus from Japan, which has a big home consumption, began about four years ago. With the arrival of the load on the Yamakiku Maru, the amount of frozen octopus in Prince Rupert reached a record level of one million pounds.

Canada (Contd.):

Use of octopus as bait has grown to proportions unthought of by early-day commercial fishermen. The local fishing fleet has recognized its value for years, however, and baited their hooks with the leathery flesh whenever it was obtainable. When the Orient opened up as a source of supply, the local industry was one of the first to buy from there.

Tough, and thus capable of hanging on longer and better, octopus is generally preferred now to traditional baits, such as herring, grey cod, or salmon.

A big halibut fishing vessel such as the Northern Dawn will take 8,000 pounds of octopus on a trip calculated to yield, if fishing is good, about 125,000 pounds of halibut. Most fishermen do not use only the octopus as a lure. They will intersperse it with herring or chunks of grey cod. It sells to the fisherman between 32 and 34 cents a pound, a price which fishermen regard as too high. Some say they think the price peak has been reached, and that prices will start getting lower.

The Far Eastern season for catching octopus extends from September to the end of March. One would be inclined to think that the Koreans and Japanese dive for these tentacled creatures of the deep, but this is not so. Octopus have a way of eluding divers. So the standard method is by set gear. As soon as one hook snags an octopus, others come to see what has happened and get caught themselves, according to the production manger of the cooperative who visited Korea in 1962 to purchase frozen octopus for bait. (Western Fisheries, March 1963.)

* * * * *

LOBSTER OPEN SEASON POSTPONED IN TWO AREAS DUE TO ICE FLOES:

Severe ice conditions in parts of the Gulf of St. Lawrence, Northumberland Strait, and the Strait of Canso caused the postponement of the opening of lobster fishing seasons in two areas.

The Canadian Fisheries Minister on April 26, announced that as a result of representations for the postponement of the opening seasons in Lobster Districts 7B and 7A, the Department of Fisheries on April 25 conducted an aerial survey, which indicated that ice conditions were extremely bad and would remain so for some time. For that reason, the Minister decided to postpone the opening date in District 7B, which includes the waters off Restigouche and Gloucester Counties and part of Northumberland County, New Brunswick, and the outer coast of Prince Edward Island, until May 7. He also decided to postpone the opening date in District 7A, which is the eastern part of Canso Strait, until May 10. Additional time was to be added to the latter end of the seasons in both districts.

As an experiment, fishermen in both districts were allowed to set traps in both areas 2 hours earlier than usual--at 8:00 a.m. on the day before the opening date. By the experiment, traps could be legally set in Lobster District 7B at 8:00 a.m. on May 6 and in District 7A at 8:00 a.m. on May 9.

The Department of Fisheries continued checking ice conditions until the opening dates. (Department of Fisheries, Ottawa, Canada.)

* * * * *

WEST COAST HERRING LANDINGS SET NEW RECORD FOR 1962/63 SEASON:

The Canadian west coast 1962/63 herring season ended March 10, 1963, with landings totaling a record 265,647 tons. This amount exceeds the previous record of 253,000 tons landed in the 1955/56 season.

Production of fish meal amounted to 48,015 tons, about 9,000 tons more than in the 1961/62 season. Oil production was 4.8 million gallons, or about 100,000 gallons above the previous season. The 1962/63 season was curtailed by an 8-week vessel tie-up in October-November, the period when oil production is highest.

Fishing was good in all areas of the British Columbia coast, although bad weather at times cut the production to almost nothing. The Central area of District 2 was the top producer, with landings of 62,626 tons which is a record for that area, and 23,000 tons more than last season's landings. The lower east coast--where quotas were extended on two occasions--produced 55,665 tons. The northern area, where fishing in Freeman Pass had been good for two years, was third in production with 42,792 tons.

Canada (Contd.):

Queen Charlotte Islands produced 19,856 tons, the best landings since 1959.

Fishing on the British Columbia west coast was also good, although landings were considerably less than in 1959 and 1960. Production of 49,304 tons was almost identical with last season. Middle east coast British Columbia landings were 24,707 tons, higher than average, and landings of 10,697 tons in the upper east coast were about average.

Only 786 tons of herring were frozen for bait, much less than average. Record shipments of octopus from Japan and Korea into Prince Rupert this past winter have cut down the market for herring bait in the halibut fishery. (Western Fisheries, March 1963.)

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PRODUCTION, UTILIZATION, AND FOREIGN TRADE IN MARINE OILS, 1962:

The worldwide decline in the price of fish oils has strongly affected Canadian utilization and foreign trade in marine oils. Canada's production of marine oils declined only slightly in 1962 and fish oil production may be maintained at about the same level in 1963 if fish meal prices continue at a profitable level.

Table 1 - Canada's Production of Marine Oils, 1960-1962 and 1956-1960 Average

	1/ 1962	2/ 1961	2/ 1960	5-Year Avg. 2/ 1956-60
	(1,000 Pounds)			
Atlantic				
Production:				
Cod oil	3/	3/	7,725.0	7,393.2
Other	3/	3/	4,493.4	5,752.6
Total	10,628.6	10,649.6	12,218.4	13,145.8
British Columbia				
Production:				
Herring oil	41,029.9	42,862.8	15,985.4	29,551.0
Total Production	51,658.5	53,512.4	28,203.8	42,696.8

1/Preliminary.
2/Revised.
3/Not available.
Note: Production data converted to pounds using the factor 9.307 pounds equal 1 Imperial gallon.

The quantity of marine oils used in Canadian margarine and shortening continued to increase in 1962. The decided switch in Canada from vegetable oils to marine oils for margarine production began in the middle of 1961 when the price of fish oils began to decline.

Table 2 - Canada's Use of Marine-Animal Oils in Margarine and Shortening Production, 1960-1962 and 1956-1960 Average 1/

Item	2/ 1962	3/ 1961	3/ 1960	5-Year Avg. 3/ 1956-1960
	(Million Pounds)			
Margarine:				
Production	187.0	184.0	166.6	144.0
Marine Oils:				
Quantity used in margarine	48.3	31.6	12.4	15.8
Percentage of tot. oils used	32.2	21.3	9.1	13.5
Shortening:				
Production	181.6	167.4	164.5	161.4
Marine Oils:				
Quantity used in shortening	21.6	16.9	7.5	15.5
Percentage of tot. oils used	11.9	10.1	4.6	9.6

1/Refined oil basis.
2/Preliminary.
3/Revised.

Table 3 - Canada's Exports of Marine Oils, 1960-1962

Commodity and Country of Destination	1962	1961	1960
	(1,000 Pounds)		
Cod-Liver Oil:			
United Kingdom	1,288	1,338	1,543
United States	4,900	5,883	6,829
Other countries	-	3	-
Total	6,188	7,224	8,372
Herring Oil:			
United Kingdom	-	515	21,760
United States	88	444	60
Other countries	-	-	1,208
Total	88	959	23,028
Whale Oil:			
United States	-	129	64
United Kingdom	593	-	-
El Salvador	661	-	-
Other countries	5	-	-
Total	1,259	129	64
Other Fish and Marine Animal Oils:			
United States	126	519	225
Other countries	54	17	1
Total	180	536	226
Total Exports	7,715	8,848	31,690

Table 4 - Canada's Imports of Marine Oils, 1960-1961 and January-October 1961-1962

Commodity and Country of Origin	January-October		Year	
	1962	1961	1961	1960
	(1,000 Pounds)			
Cod-Liver Oil:				
United Kingdom	402	630	917	1,353
Norway	23	32	48	122
United States	22	12	12	-
Other countries	61	-	5	-
Total	508	674	982	1,475
Whale and Sperm Oil:				
United Kingdom	104	291	350	298
United States	510	505	693	264
Norway	89	73	96	67
Total	703	869	1,139	629
Other Fish and Marine-Animal Oils:				
United States	8,749	17,703	17,732	10,198
Iceland	15,223	4,100	12,711	-
Bahama Islands	-	948	948	-
Other countries	161	100	102	79
Total	24,133	22,851	31,493	10,277
Total Imports	25,344	24,394	33,614	12,381

Canada (Contd.):

Total exports of marine oils in 1962 were 12.8 percent below the depressed levels of 1961. The decline would have been even greater except for a modest recovery in whale oil exports in 1962. Canada became a net importer of marine oils in 1961 when foreign markets for herring oil were lost. Canadian marine oil imports during the first 10 months of 1962 were 3.9 percent greater than in the same period of the previous year. During January-October 1962, Iceland replaced the United States as Canada's leading supplier of marine oils. (U. S. Embassy, Ottawa, April 18, 1963.)

Note: See Commercial Fisheries Review, January 1963 p. 80.

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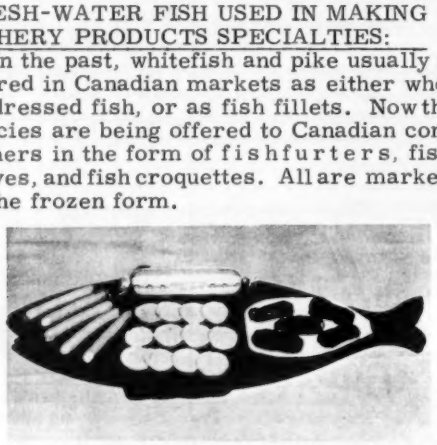
FRESH-WATER FISH USED IN MAKING FISHERY PRODUCTS SPECIALTIES:

In the past, whitefish and pike usually appeared in Canadian markets as either whole or dressed fish, or as fish fillets. Now those species are being offered to Canadian consumers in the form of fishfurters, fish loaves, and fish croquettes. All are marketed in the frozen form.



The fishfurters, as their name indicates, are fish sausages. Although they resemble frankfurters in size and shape, they are not smoked. Their flavor is delicate and distinctive from that of meat sausages.

Somewhat similar in idea, but different in flavor, is a rounded fish loaf shaped like a small bologna roll. It can be sliced and served hot or cold.

Perhaps the most unique of the new products is fish croquettes. Oblong in shape and deep brown in color, the croquettes are eye-appealing. Inside they are firm, smooth, and white. As they have been cooked in vegetable oil, those whose diets restrict animal fats can enjoy them.

The plant in which the fishfurters and croquettes are processed operates under Canadian Government supervision and products from the plant may show the maple leaf insignia of the Canadian Department of Fisheries. (Trade News, March 1963, Canadian Department of Fisheries.)

Ceylon

IMPORT LICENSES FOR FISHERY PRODUCTS REQUIRED:

The Ceylonese Controller of Imports and Exports, in a Notice issued on April 18, 1963, announced that an individual license would be required to import fish products and preparations from any source into Ceylon.

According to a newspaper report, the Ceylonese Cooperative Wholesale Establishment has been unable to dispose of a large stock of canned fish. It is expected that the special import license system will be lifted as soon as those stocks are sold. (United States Embassy, Colombo, April 25, 1963.)

Chile

FISHERIES POTENTIAL STUDIED BY NORWEGIAN MISSION:

A semiofficial Mission consisting of 13 Norwegian businessmen spent two weeks during March 1963 in Chile to study investment opportunities offered by Chile's marine resources. Of primary interest to the group is the production of fish meal and fish oil, forzen fish fillets, and fishing equipment. The Mission traveled first to the south to investigate, in particular, processing of the excellent fish believed to exist in commercial quantity out of Puerto Montt. Later the group went north to visit the Arica-Iquique area.

A new fish-meal plant has been established at Pisagua by Norwegian interests. Its present monthly production is 2,000 tons of fish meal. The plant was designed to permit expansion of its capacity to 60,000 tons per year. Exports are shipped directly from Pisagua. (United States Embassy, Santiago, March 18, 1963.)

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Chile (Contd.):

FISHERIES TRENDS, APRIL 1963:

The interest of both the Chilean Government and private capital appears to be shifting to processing of fish for human consumption (frozen, canned, salted, and smoked). A wholesale terminal is to be established within the year to facilitate the marketing of fresh fish and fish products brought to Santiago. The possibility of shipping fish fillets by refrigerated cars from Puerto Montt is under study. Distant small fishing villages are being encouraged to increase the output of smoked fish as the national demand exceeds the present supply.

A Chilean periodical reports that most, if not all, sites in Iquique have been taken, primarily by the fish-meal industry. Several of the established companies, however, are investigating the feasibility of adding facilities to process tuna and bonita in lieu of further expansion of the fish-meal plants. This relative new interest in the processing of tuna is likely to influence Chile's position with respect to the proposed yellowfin tuna conservation program.

A South African firm with investments in the Chilean fish-meal industry plans to invest an additional US$280,000 in its Iquique fishing and fish-meal operations.

A jointly owned Japanese and United States firm's application to the Chilean Foreign Investment Committee to invest $225,000 to produce fishing nets, floats, and other fishing gear in Iquique has been approved.

Typical Chilean fishermen fishing for tuna.

The Chilean Government has not yet given its approval to the proposed investment guaranty agreement under which the United States Government could insure U. S. investments against political risks or war damage. (United States Embassy, Santiago, April 22, 1963.)

* * * * *

FISH MEAL AND OIL

INDUSTRY TRENDS, 1962:

Fish-meal production in Chile during 1962 amounted to 91,588 metric tons, up 57.2 percent from the production of 58,252 tons in 1961. Chilean exports of fish meal in 1962 were 75.6 percent greater than in the previous year. In 1962, the Netherlands was the leading buyer of Chilean fish meal, followed by the United States, Belgium, and West Germany.

Table 1 - Chilean Exports of Fish Meal by Country of Destination, 1961-1962

Commodity and Country of Destination	1962	1961
	. . (Metric Tons) . .	
Anchovy Meal:		
Brazil	-	184
Belgium	600	900
France	800	600
Germany	1,600	100
Netherlands	2,200	1,700
United Kingdom	200	-
United States	1,500	2,644
Venezuela	-	220
Total	6,900	6,348
Unclassified Fish Meal:		
Belgium	9,378	1,000
Cuba	500	-
Finland	150	-
France	3,225	1,588
Germany	8,591	3,204
Italy	600	-
Netherlands	13,169	13,920
Norway	-	250
Panama	500	-
Poland	2,500	-
Spain	4,000	-
Sweden	150	200
United Kingdom	5,774	532
United States	10,271	9,849
Venezuela	5,962	4,128
Other countries	-	73
Total	65,270	34,744
Grand Total	72,170	41,092

Chilean exports of fish oil in 1962 were up 137.3 percent from those in the previous year. The Netherlands took 73.7 percent of Chile's 1962 fish oil exports.

Table 2 - Chilean Exports of Fish Oil by Country of Destination, 1961-1962

Country of Destination	1962	1961
	. . (Metric Tons) . .	
Belgium	250	-
Denmark	-	56
Germany	2,256	3,946
Netherlands	8,035	168
Norway	368	428
Total	10,909	4,598

The growth of the fish-meal and fish-oil industry in Chile is reflected in that country's

Chile (Contd.):

Table 3 - Chilean Fishery Landings, 1960-1963

Year	Fish	Shellfish	Total
		(Metric Tons)	
1962	577,373	52,583	629,959
1961	388,819	40,932	429,751
1960	304,667	35,038	339,705

fishery landings which in 1962 showed an increase of 85.4 percent over landings in 1960. Continued expansion of the Chilean fish meal industry is expected in the next few years. The Government of Chile is implementing its fisheries development policy with loans, credits, and other types of aid. (United States Embassy, Santiago, April 15, 1963.)

* * * * *

WHALING INDUSTRY TRENDS, 1962:

Chilean whalers took 2,340 whales in 1962, or very close to the 2,334 caught in the preceding year. Sperm whales constituted about 97.5 percent of the total 1962 catch.

The 1962 catch yielded 6,435 metric tons of sperm oil, 271 tons of whale oil, and 2,250 tons of whale meal. Production in the previous year amounted to 6,195 tons of sperm oil, 1,485 tons of whale oil, and 1,498 tons of whale meal.

Table 1 - Chilean Exports of Sperm and Whale Oil by Country of Destination, 1961-1962

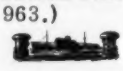
Country of Destination	1962	1961
	(Metric Tons)	
United States	-	1,310
Argentina	226	17
Germany	2,998	200
Netherlands	1,588	1,122
Norway	640	-
Total	5,452	2,649

Total exports of whale and sperm oil in 1962 were more than double the amount shipped out in the previous year. But shipments of whale meal showed a small decline in 1962.

Table 2 - Chilean Exports of Whale Meal by Country of Destination, 1961-1962

Country of Destination	1962	1961
	(Metric Tons)	
United States	781	912
Germany	50	-
Netherlands	100	-
United Kingdom	-	200
Sweden	10	-
Switzerland	50	-
Total	991	1,112

Chilean imports of whale meal and oil are negligible. (United States Embassy, Santiago, April 15, 1963.)



Cuba

FISHERY TRAINEES SENT TO SOVIET UNION:

The Fishery Department of Cuba's Instituto Nacional Reforma Agraria has sent 185 fishery and naval trainees to the Soviet Union. They left Havana on February 13, 1963, aboard the Soviet liner Baltika for Kaliningrad where they will be trained mainly in the management of ports as ship dispatchers, shipyard workers, electricians, crane operators, etc. Some of the trainees will specialize in fishery subjects, mainly fish processing. (Unpublished sources.)

Ecuador

PERMIT GRANTED TO FOREIGN FREEZERSHIP TO PURCHASE FISH:

In an Executive Decree dated January 30, 1963, the Ecuadoran Government granted a permit to a foreign-owned freezership, the Arctic Maid, to purchase fish in Ecuadoran waters for one year. The decree provides that the owners of the Arctic Maid will grant credits up to US$32,000 to fishing cooperatives and other organizations. In addition, the freezership is prohibited from purchasing fish from fishermen who already have contracts to sell their fish to other purchasers. The Decree also provides that the owners of the Arctic Maid shall submit a plan for the establishment of a land-based freezing plant and a five-year operating plan. (United States Embassy, Quito, April 1, 1963.)

Faroe Islands

FISHERIES TRENDS, APRIL 1963:

The decision by Denmark to extend the fisheries limits around the Faroe Islands from 6 to 12 miles effective from March 12, 1964, satisfies neither the Faroese nor the British. The Faroese wanted the new limits to become effective April 28, 1963, and the British desired no change. In the intervening period it is expected that the Faroese will attempt to meet the threatened blockade of their landings of fresh fish in British ports by shifting to processing and freezing their catches so they may be marketed as frozen fillets or blocks in Europe or in the United States. A cold-storage plant with a frozen-fish capacity of 6.6 million pounds is planned for construction in Klaksvig, Faroe Islands.

In early April 1963, Faroese fishermen and vessel owners avoided a tie-up by renewing their annual agreement after the Government guaranteed the fishermen a minimum wage of 1,000 kroner (US$145) monthly while employed on fishing vessels, and promised to remove the export tax on dried and salted fish and salted herring, as requested by the vessel owners.

Faroe Islands (Contd.):

In April 1963, the first keels were laid for the construction of five long-line vessels in East Germany for delivery to the Faroe Islands in February and March 1964. The contract was entered into several years ago by the Faroese herring sales organization (Føroya Sildasøla), when East Germany stipulated that at least 5 Faroese fishing vessels must be built in East Germany in return for its purchases of Faroese salted herring. A new Faroese company has taken over the contract, which amounts to 6 to 7 million kroner (US$870,000-1,015,000), and will offer the vessels to interested Faroese vessel operators. If there is not sufficient demand, the vessels will be offered for sale to other countries. The cutters are to be 118 feet long and are designed for distant water fisheries. The vessels powered by Diesel engines, will carry a crew of 25 and have a capacity of 160 tons of salt fish. The vessels are being constructed by the Government-operated shipyard in Beussenburg in North Germany, a few miles from the West German border. Faroese fishermen are anxious to see how the first East German built long-line cutters will perform, although it is reported that Soviet fishermen have had good experiences with them in the North Atlantic fisheries.

Following their usual practices, about 14 West German trawlers (including some of the newest 1,000-ton stern trawlers) planned to stop in Thorshavn, Faroe Islands, in April and May this year to take on board about 100 Faroese fishermen to augment their crews for the Greenland fishery. In prior years, the Faroese have been paid a fixed daily wage, but this season at least one of the trawlers is offering only the same share arrangements as the German fishermen receive.

Faroese fishermen have asked the Government to curtail the seal population around the islands which has grown to an estimated 30,000 since hunting ceased. They believe the seals consume 162,000 metric tons of fish annually and could be hunted profitably for their skins and blubber which, salted in barrels, are reported to bring good prices in export markets.

Plans are reported under way to utilize an old whaling station at Strømø in the Faroe Islands during the summer of 1963 to produce herring meal and oil which will provide additional employment and develop new export possibilities. Despite a poor whaling season in 1962, earlier efforts were directed toward whaling again in 1963, especially to produce whale meat for food for the local population. (Regional Fisheries Attache for Europe, United States Embassy, Copenhagen, April 24, 1963.)

France

IMPORT LICENSES MAY NOT BE ISSUED FOR FROZEN TUNA IN 1963:

The French Government is not expected to issue import licenses for frozen tuna in 1963, according to Japanese trade circles. In 1962, France had issued import licenses for 3,500 metric tons of frozen tuna and it was hoped that she would, in 1963, import between 4,000 to 6,000 tons of tuna. Reportedly, French tuna fishing vessels are making excellent catches this year and the French Government has decided not to allow tuna imports in 1963 so as to maintain domestic tuna prices. (Suisan Tsushin, March 30, 1963.)

French Guiana

TWO UNITED STATES FIRMS EXPAND SHRIMP OPERATIONS:

The fleet of 33 shrimp trawlers which will be fishing for the 2 United States firms with processing facilities in French Guiana should produce an annual catch with a value of at least US$3.3 million. A shrimp vessel can catch substantially more off French Guiana than in the heavily fished waters along the Gulf Coast of the United States, according to representatives of both companies.

The operation was pioneered by a fishery firm of Tampa, Fla., which established a shrimp-packing plant at St. Laurent, French Guiana, in the latter part of 1962. Blast-freezing and cold-storage facilities at the base are now being expanded. In late March 1963, a fleet of 9 vessels was serving the St. Laurent plant, and an additional 9 shrimp vessels were enroute from the United States to St. Laurent.

The second shrimp-fishing operation in French Guiana, which is based at Cayenne, represents a joint venture by a fishery firm of Miami, Fla., and local businessmen in French Guiana. The Miami firm owns the 15 shrimp trawlers operating out of Cayenne and has a majority interest in the shore facilities. The shore plant includes a blast-freezer with a capacity of 30,000 pounds and a cold-storage warehouse with a capacity of 800,000 pounds. The facilities could service a larger fishing fleet and the management expects to add more vessels in the coming months.

The shore installations and fishing fleets of the shrimp bases at St. Laurent and Cayenne represent a combined investment of about $2 million. (United States Consulate, Martinique, March 26, 1963.)

German Federal Republic

FISH MEAL AND MARINE OIL INDUSTRY TRENDS, 1962:

Fish Meal: Consumption of fish meal in West Germany reached a new high in 1962.

Germany Federal Republic (Contd.):

Table 1 - West German Supply and Distribution of Fish Meal1/, 1961-1963

Item	2/1963	1962	1961
	(1,000 Metric Tons)		
Supply:			
Opening stocks, January 1	8.0	11.0	2.0
Production	90.0	86.5	74.6
Imports	365.0	338.5	273.6
Total supply	463.0	436.0	350.2
Disposition:			
Exports	5.0	3.7	5.0
Domestic consumption:			
Animal feed	450.0	424.3	334.2
Stocks on hand Dec. 31	8.0	3/8.0	11.0

1/Includes small amounts of meat meal.
2/Forecast.
3/Estimated.

The increase was due mainly to a 7-percent gain in pork production, a 6-percent increase in egg production, and improved feeding practices. Imports of fish meal were at a record level in 1962 and accounted for 78 percent of West Germany's fish meal supply. Peru was West Germany's leading supplier of fish meal.

Table 2 - West German Foreign Trade in Fish Meal1/, 1961-1962

Countries of Origin or Destination	1962	1961	Change from 1962
	(Metric Tons)		Percent
Imports:			
Peru	255,223	190,524	+ 34
Iceland	16,346	16,459	- 1
South Africa Republic	18,518	6,453	+187
European Economic Community (EEC) Countries	6,865	2/	-
United States	1,062	293	+262
Other countries	40,503	59,941	-
Total imports	338,517	273,670	+ 24
Exports:			
EEC Countries	1,303	2/	-
Other Countries	2,405	3,383	-
Total exports	3,708	3,383	+ 10

1/Includes small amounts of meat meal.
2/Included in total for "other countries."

Edible Marine Oils: Domestic consumption of edible marine oils in West Germany during 1962 was 7 percent below that in the previous year. Actually the total consumption of all types of edible oils (vegetable and animal) increased 2.7 percent in West Germany in 1962. But marine oils suffered due to a decline in margarine consumption. The West German supply of edible marine oils in 1962 amounted to 129,100 metric tons (table 3).

Inedible Marine Oils: From domestic materials, West German plants produced 9,200 tons of inedible marine fats and oils in 1962 as compared with 8,400 tons in the previous year. In addition, imports of inedible marine oils into the country in 1962 totaled 17,600 tons and consisted of 9,200 tons of whale oil and 8,400 tons of fish body oils. In the previous year, inedible marine oil imports consisted of 8,800 tons of whale oil and 7,600 tons of fish body oil. (United States Embassy, Bonn, April 10, 1963.)

Table 3 - West Germany Supply and Distribution of Edible Marine Oils1/, 1961-1962

Item	2/1962	3/1961
	(1,000 Metric Tons)	
Supply:		
Stocks on hand, January 1 4/	8.0	5.0
Production	14.8	13.6
Imports:		
Whale oil	49.9	66.6
Fish oil	56.4	55.8
Total imports	106.3	122.4
Total supply	129.1	141.0
Disposition:		
Exports:		
Whale oil	2.2	-
Fish oil	17.8	20.5
Total exports	20.0	20.5
Domestic consumption	104.1	112.5
Stocks on hand, December 31 4/	5.0	8.0

1/Includes crude and refined oils.
2/Preliminary.
3/Revised.
4/Estimated.

* * * * *

ORDERS FOR NEW VESSELS BY SOVIETS UNCERTAIN:

Negotiations on ship orders held during the last part of January 1963 in Moscow between a team of directors of the West German Government-owned shipyard at Kiel, and a Soviet Foreign Trade Agency have been postponed for an indefinite period of time. The team, headed by the shipyard's Director General, returned to Kiel on January 30 not only without a contract but also "without a tangible result," according to the Director General. The shipyard declined any information on the reason for the postponement and on the size of the ship orders involved. The local press on February 2, however, cited well-informed circles as having mentioned an order for 3 or 4 fish factoryships.

In the postwar period the Soviet Union has placed ship orders with the shipyard at Kiel totaling about DM 500 million (US$125 million). The orders included fish factoryships and whaling motherships. In mid-December 1962, the whaling mothership Vladivostok constructed by the Kiel firm was delivered to the Soviets. On that occasion, the Deputy Chief of Mission of the Soviet Embassy, expressed hope for agreement on future shipbuilding contracts

German Federal Republic (Contd.):

provided the shipyard offered acceptable terms. (United States Embassy, Bonn, February 5, 1963.)

Ghana

TERRITORIAL WATERS EXTENSION DEBATED:

The Government of Ghana on March 22, 1963, published a bill entitled "Territorial Waters and Continental Shelf Bill." The bill, which was scheduled for debate March 28, contained the following main provisions:

(1) Territorial waters of Ghana to extend 12 nautical miles from the low-water mark.

(2) By legislative instrument the President may declare any part of the sea touching or adjoining the coast and seaward of the outer limits of the territorial waters to be the area over which the Government shall exercise any right of protection.

(3) By legislative instrument the President may declare any area of the sea touching or adjoining the coast and within distance of one hundred nautical miles from the outer limits of the territorial waters to be a fishing conservation zone and may specify measures for conservation of the resources of such area.

(4) The bill also gives Ghana the right to minerals and other inorganic as well as organic matter covered by territorial waters and of the continental shelf. The latter is defined as including the sea bed and subsoil of marine areas to a depth of one hundred fathoms contiguous to the coast and seaward of the area of land beneath the territorial waters of the Republic. (United States Embassy, Accra, March 22, 1963.)

Greece

ACTIVE SPONGE FISHERY EXPECTED IN 1963:

Fifteen Greek sponge fishing vessels will be licensed by the Libyan Government to operate in Cyrenaican waters during the summer of 1963. In addition, four Greek sponge vessels may work in Egyptian waters this summer.

At least 60 Greek vessels are expected to participate in the 1963/1964 sponge fishing season in their home waters. (Alieia, March 1963.)

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NUMBER OF FISHERMEN INCREASES:

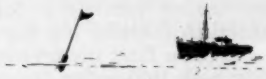
At the end of 1961, there were 52,000 active fishermen in Greece, whereas in 1955 there were only 30,000, according to the Greek National Statistical Service. (Alieia, March 1963.)

Guinea

JOINT FISHING VENTURE WITH JAPANESE PROPOSED:

The Government of Guinea, West Africa, is reported to be seeking Japanese participation in a joint fishing venture in Guinea. The offer for joint operation was recently presented to the Japanese Overseas Fisheries Cooperative Association, a Government-sponsored organization, following the preliminary inquiry made by the Guinean Minister of Commerce during a visit to Japan. Guinea is primarily interested in Japanese investments in the form of fishing vessels, fish-meal plant, and other base facilities. Guinea is to invest 51 percent and Japan 49 percent in this joint venture, and remittance of profits to Japan will be permitted in accordance with the domestic law of Guinea. The Overseas Fisheries Cooperative Association planned to sound out the views of Japanese fishing firms on the offer by the end of April 1963.

Fish production in Guinea, which is estimated at about 6,000 metric tons annually (4,000 tons by coastal fishermen and 2,000 tons by the joint Guinean-Polish trawling enterprise), is said to be inadequate to supply the domestic market. The Guinean Government therefore plans to raise the annual fish production to 12,000-18,000 tons, primarily by increasing tuna production from coastal waters. (Minato Shimbun, April 24, 1963.)



Iceland

CONTRACT SIGNED FOR SALE OF FROZEN FISH FILLETS TO THE SOVIET UNION:

The Icelandic Freezing Plants Corporation and the Fisheries Department of the Icelandic Federation of Cooperatives (Samband) signed a contract on April 2, 1963, with the Soviet Union for the sale in 1963 of 15,000 metric tons of frozen fish fillets, including cod, ocean perch, haddock, catfish, saithe (pollock) and ling. The contract was based on the 3-year bilateral trade protocol between Iceland and the U.S.S.R. which was negotiated in late 1962. (United States Embassy, Reykjavik, April 5, 1963.)

Note: See Commercial Fisheries Review, April 1963 p. 54.

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FISHERIES TRENDS, APRIL 1963:

Loans to Aid Fishing Industry: The Icelandic Development Loan Program for 1963 will benefit from a British loan of Kr. 240 million (US$5,574,000) which was arranged in early 1963. Under the allocation plan for the British loan, Kr. 50 million (US$1,161,000) will be made available to private borrowers in the fishing industry. Most of this will be used for the construction of herring meal and oil plants on the southwest coast, according to an official of the Icelandic State Herring Production Board. The new reduction plants would relieve the present shortage of processing facilities during the peak of the herring fishing season. Part of the fisheries loan funds may also be used to modernize existing herring canneries.

The Icelandic fishing industry may also benefit from the proposal to allocate Kr. 50 million (US$1,161,000) of the British loan for harbor development in Iceland.

Trawlers Handicapped by Labor Shortage: A number of trawlers were idled because adequate crews could not be found and some trawlers were operating with only 24 of their mormal complement of 30 men.

The labor shortage for the fishing industry in general is aggravated by (1) increasing competition from other industries; (2) the expansion of Iceland's fishing fleet; (3) the longer fishing seasons and larger catch; and (4) the decreasing number of foreigners who are attracted to Iceland for the fishing season. The Faroese find increasing employment at home as their own fishing fleet grows and the Spaniards find it difficult to learn Icelandic fishing methods partly because of the language barrier. The incentive offered to attract fishermen from other countries usually involves a travel allowance which makes such labor very expensive for a single season. (United States Embassy, Reykavik, April 25, 1963.)

Note: Icelandic kronur 43.06 equals US$1.00.

India

IMPORTS OF MARINE OILS, 1961-1962:

India's limited imports of marine oils consist mainly of medicinal oils. The United Kingdom was India's leading supplier of marine oils in 1961 and 1962.

India's Imports of Marine Oils, 1961-1962

Commodity and Country of Origin	1962	1961
	(Metric Tons)	
Cod Liver Oil:		
United Kingdom	12.6	51.9
Norway	28.6	11.9
Other countries	-	1.2
Total cod-liver oil	41.2	65.0
Shark Liver Oil:		
Japan	-	5.4
Sperm Oil:		
United Kingdom	38.2	46.9
Norway	8.7	10.7
West Germany	0.5	-
Japan	-	10.0
Other countries	0.3	15.3
Total sperm oil	47.7	82.9
Unclassified Marine Oils:		
United Kingdom	28.9	66.5
Czechoslovakia	0.3	-
United States	50.6	0.4
Norway	5.0	27.7
Other countries	0.6	2.7
Total unclassified marine oils	85.4	97.3
Total marine oils	174.3	250.6

Source: Monthly Statistics of the Foreign Trade of India, Department of Commercial Intelligence and Statistics, Calcutta, India.

In India, the emphasis is on the production and use of vegetable oils. Animal and marine oils play an insignificant role because of the religious sentiments of the majority of the population. (Foreign Agricultural Service, United States Embassy, New Delhi, April 11, 1963.)

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U. S. FIRM TO SURVEY FISHERY RESOURCES FOR INVESTMENT OPPORTUNITY:

A study which may lead to the establishment of a new marine fisheries industry in India to be undertaken under an investment survey was announced on April 10, 1963, by the Agency for International Development (AID). The survey will be made by a tuna canning firm of Long Beach, Calif., which is considering the possibility of becoming as-

India (Contd.):

sociated in the project in cooperation with Indian investors.

AID will finance half the cost of the survey, or up to $17,500, as part of a program to encourage the investment of private United States capital in business enterprises in countries receiving economic assistance from the United States.

The California firm is sending a 4-man team to India to make the survey, which will include a study of shrimp, tuna, sardine, and mackerel resources, the facilities required, and the financial outlay necessary.

Preliminary information suggests that 5 to 7 separate establishments may be desirable and that the initial capital requirement will be substantial. Fish meal and oil may be produced as well as other fishery products.

Iran

FISHERIES DEVELOPMENT PROJECTS:

A resolution calling for the creation of a Southern Fisheries Company was approved by the Government of Iran at a Cabinet meeting on March 31, 1963, according to the Iranian press. The purpose of the new company will be to supply Iran with fish and to aid the economic development of southern Iran. It will have a capital investment of 500 million rials (US$6.6 million). Its stockholders will include the Iranian Ministry of Finance, the Southern Ports and Islands Development Aid Organization, the Agricultural Credit and Rural Development Bank, and the Armed Forces Cooperative Society. The Ministry of Finance may sell up to 3,750 of its shares to the public. Buyers will have to pay in 40 percent of the value of their shares which will be worth 20,000 rials ($264) each.

Tehran newspapers announced in late March 1963 that an Iranian-Soviet agreement for the establishment of fish hatcheries in the Caspian Sea would be signed in the near future. The reports stated that two Soviet fish breeding experts had recently completed studies in Iran. (United States Embassy, Tehran, March 26 and April 9, 1963.)

Notes: (1) Iranian rials 75.75 equals US$1.00.
(2) See Commercial Fisheries Review, September 1962 p. 80.

Ireland

DEVELOPMENT OF FISHING INDUSTRY PLANNED:

An outline of Ireland's current thinking and plans for the development of the Irish sea fishing industry was given by the Parliamentary Secretary to the Minister for Lands (with special responsibility for fisheries) on March 31, 1963.

This program will be centered around the expansion of inshore fishing fleets owned by Irish fishermen, small companies, and cooperatives. The Sea Fisheries Board, under its first full time chairman, will withdraw from fishing operations on its own account and will concentrate on financing vessel construction, the development of advisory services, and the building up of an extensive marketing organization.

Development of deep-sea operations is not being stressed at the present time, in view of the relatively small size of the fishing vessels presently available, as well as the reluctance of the Irish fisherman to take long trips which would keep him away from base for considerable periods.

The Sea Fisheries Board, however, is interested in attracting North American fishing fleet operators interested in entering the European markets to utilize Irish facilities. This could be done on a basis either of direct sales to the Sea Fisheries Board at Irish ports or on a joint enterprise basis with the Board. (United States Embassy, Dublin, April 19, 1963.)

Italy

FISHERY LANDINGS, JANUARY-SEPTEMBER, 1962:

Italy's fishery landings for the first 9 months of 1962 totaled 149,203 metric tons--a drop of 10.5 percent from the same period in 1961.

It was reported that the Italian fishing industry is in a somewhat precarious position with one of the more serious difficulties being the exclusion from traditional fishing grounds off the Moroccan and Mauretanian coasts as a result of the extension of territorial waters to 12 miles. (The Fishing News, April 5, 1963.)

Japan

ATLANTIC OCEAN TRAWL FISHERY TRENDS, APRIL 1963:

The 2,524-ton Japanese stern trawler Unzen Maru was scheduled to depart for the fishing grounds off the South African coast in late April 1963. The trawler will operate out of Cape Town, South Africa Republic, for about one year.

A total of nearly 30 large Japanese trawlers are expected to fish in the Atlantic Ocean in Fiscal Year 1963 (April 3-March 1964). Forecasts are being made that their combined landings will exceed 100,000 metric tons, of which nearly 30,000 tons are expected to be exported.

The 3,500-ton tuna mothership Tenyo Maru is to be converted into a stern trawler at a cost of approximately 200 million yen (US$556,000). The vessel, due home in April from the South Pacific tuna fishing grounds, is scheduled to leave early in July for the North Atlantic where she will fish mainly for cod. The Tenyo Maru is scheduled to be based at Hamburg, West Germany.

One of the large Japanese fishing companies plans to cease temporarily its trawling operations off the northwest coast of Australia. Of the three 500-ton trawlers engaged in that fishery, the firm plans to divert two of them (Taiyo Maru, Nos. 2 and 5) to the Atlantic Ocean and possibly be based at Lagos, Nigeria. The third trawler (Taiyo Maru) is being assigned to operate in the area southeast of the Aleutian Islands. This vessel departed for the fishing grounds from Shimonoseki, southern Japan, on April 14.

Another Japanese fishing company is reported to be planning on dispatching a pair of 99-ton two-boat trawlers, Kyoshin Maru, Nos. 20 and 21, to the Atlantic Ocean in June. The trawlers are expected to be based at Las Palmas, Canary Islands.

A third Japanese fish company's 1,500-ton stern trawler Daishhin Maru, No. 10, was scheduled to return to Tokyo on April 21 from the Atlantic Ocean with 900 metric tons of frozen fishery products. The Daishin Maru, which spent 14 months at sea, will return to the Atlantic Ocean upon completing repairs.

According to Japanese press reports, the Japanese trawlers operating off the coast of West Africa, in addition to fishing for sea bream and octopus, reportedly devote a great deal of their effort in fishing for a species of squid described commercially as "monko ika." "Monko ika" (monko squid) is described as a large squid with very tender and delicious meat and is said to be utilized primarily by the sashimi (raw fish) trade in Japan, being especially popular during the summer season.

In the summer of 1962, West African "monko ika" reportedly sold for 270,000-300,000 yen (US$750-833) per metric ton in Japan. In March 1963, a 44-pound (net content) case of "monko ika" sold for 5,000 yen (US$13.88), or about 32 U.S. cents a pound. Supply was reported to be very short and the price for that product was expected to exceed 38 cents a pound due to reports that the Japanese trawlers operating off West Africa were experiencing poor fishing.

At the height of the "monko ika" fishing season off West Africa in 1962, that species reportedly constituted from 60 to 90 percent of each haul. However, fishing in January-March of this year was reported to be very poor, with "monko ika" making up an average of only about 20 percent of the total catch. (Japanese newspapers, March 23, April 8, 12, 1963.)

Japanese factoryship Tenyo Maru.

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EXPORTS OF TUNA CANNED IN OIL AND SPECIALTY PRODUCTS, FY 1962:

A total of 1,613,402 cases of Japanese canned tuna in oil was approved for export in FY 1962 (April 1962-March 1963), according to data compiled by the Japan Export Canned Tuna Packers Association. This sets a new

Table 1 - Exports of Japanese Canned Tuna in Oil, FY 1962 with Comparisons

Principal Countries of Destination	FY 1962	FY 1961
	(Actual Cases)	
West Germany	673,945	660,025
Canada	203,049	206,535
Switzerland	130,666	87,581
Netherlands	94,306	122,670
Belgium	93,860	58,759
United Kingdom	93,571	54,662
Lebanon	60,784	45,493
Aden	38,727	44,914
Syria	38,083	48,240

Table 2 - Exports of Canned Tuna in Oil, FY 1962 by Species

Species	FY 1962
	Actual Cases
Skipjack	634,892
Big-eye	458,209
Albacore	333,547
Tuna flakes	154,322
Yellowfin	32,432
Total	1,613,402

Japan (Contd.):

high in exports of tuna in oil, representing an increase of about 100,000 cases over FY 1961 exports, which totaled 1,513,395 cases.

Exports of canned tuna specialty products (other than those packed in brine and oil) totaled 445,352 cases. The pack consisted of 328,140 cases of vegetable tuna; 95,598 cases of jelly tuna; 14,168 cases of tuna in tomato sauce; 3,918 cases of curry tuna; 1,203 cases of tuna spread; 1,170 cases of tuna in soy sauce; and 1,155 cases of other packs. (Minato Shimbun, April 25, 1963.)

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EXPORTS OF CANNED TUNA IN OIL INCREASING:

Exports of canned tuna in oil from Japan, which are increasing yearly, are expected to exceed 1.5 million cases in FY 1963 (April 1, 1963-March 31, 1964) as compared with 1.2-1.3 million cases exported in years prior to FY 1962. For the 11-month period, April 1962-February 1963, a total of 1.43 million cases of canned tuna in oil was exported. At that rate, a minimum export of 100,000 cases in March 1963 would raise the total FY 1962 exports of tuna in oil to over 1.5 million cases. Reportedly, the increase in volume of sales has not brought about a corresponding increase in profits. (Minato Shimbun, April 7, 1963.)

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EXPORTS OF TUNA CANNED IN BRINE TO THE UNITED STATES, BY REGIONAL DESTINATIONS, 1958-1962:

Japanese exports of canned tuna in brine to the United States during 1958-1962 were relatively stable, averaging slightly over 2 million cases a year. But the ratio of white meat to light meat tuna in the export pack showed considerable fluctuation.

The eastern area's share of total Japanese canned tuna exports to the United States ranged between 56 and 63 percent in the 1958-1962 five-year period. During that period, shipments to the southern area, although showing some fluctuation, accounted for about 16 percent of the total and shipments to the western area accounted for about 13 percent. There was a definite upward trend in shipments to the central area between 1958 and 1961, followed by a modest decline in 1962.

Shipments to the eastern area have been heavily weighted in favor of white meat tuna, and to a lesser extent, the same has been true of shipments to the central area. Light meat tuna has generally predominated in shipments to the southern and western areas.

Japanese Exports of Canned Tuna in Brine to the United States, by Regional Destination, 1958-1962

Regional Destination in the United States	Year	White Meat	Light Meat	Total
		(Actual Cases)		
Eastern area	1962	854,426	381,918	1,236,344
	1961	1,124,021	202,208	1,326,229
	1960	679,690	420,615	1,100,305
	1959	733,140	471,380	1,204,520
	1958	969,281	320,661	1,289,942
Central area	1962	136,493	104,383	240,876
	1961	247,909	57,609	305,518
	1960	128,390	116,302	244,692
	1959	71,456	81,341	152,797
	1958	94,885	73,972	168,857
Southern area	1962	117,362	224,028	341,390
	1961	172,481	113,959	286,440
	1960	89,730	237,131	326,861
	1959	107,780	235,257	343,037
	1958	121,838	172,932	294,770
Western area	1962	109,289	180,308	289,597
	1961	125,396	108,275	233,671
	1960	64,739	223,980	288,719
	1959	78,514	217,498	296,012
	1958	87,038	187,582	274,620
Other areas	1962	350	1,580	1,930
	1961	845	1,515	2,360
	1960	531	4,440	4,971
	1959	705	3,245	3,950
	1958	920	2,475	3,395
Total, all areas	1962	1,217,920	892,217	2,110,137
	1961	1,670,652	483,566	2,154,218
	1960	963,080	1,002,468	1,965,548
	1959	991,595	1,008,721	2,000,316
	1958	1,273,962	757,622	2,031,584

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TUNA PRICES IN EARLY APRIL 1963:

According to a Japanese fisheries periodical, the supply of albacore and yellowfin tuna in Japan was light and the domestic demand was strong during early April 1963. This resulted in a situation where very little tuna was being exported to the United States since the export price was lower than ex-vessel prices. According to the periodical, yellowfin was selling at an ex-vessel price of about 128 yen per kilogram (US$323 per short ton) and albacore at 150-155 yen per kilogram (US$378-391 per short ton), but the export price f.o.b. Japan for these two species was about $30-40 less per ton.

The price for a small quantity of yellowfin contracted for shipment to the United States early in April was reported to be $310 per short ton, f.o.b. Japan. Transshipments of Atlantic Ocean albacore to the United States were quoted at $320 per short ton and yellow-

Japan (Contd.):

fin at $280-290 per short ton, f.o.b. Africa. Those prices represent a drop of about $40 per short ton from the highest prices paid in 1963. As a result, a substantial portion of the Japanese-caught tuna in the Atlantic Ocean is expected to be transshipped to Italy and Yugoslavia, where prices are reported to be firm. (Suisan Tsushin, April 13, 1963.)

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EXPORTS OF FROZEN TUNA TO THE UNITED STATES SLUGGISH IN LATE APRIL 1963:

Frozen tuna exports to the United States in late April 1963 continued to be sluggish, with major United States tuna canners still withholding purchase of Japanese-caught tuna. Only a small quantity of Atlantic-caught tuna has been sold recently to one United States West Coast packer, and small shipments contracted for direct delivery from Japan to packers located outside of California.

Prices paid for tuna contracted for shipment to the United States during April 1963 were reported to be $335 per short ton for Atlantic Ocean albacore, $315 per short ton for Atlantic-caught yellowfin (gilled & gutted), both prices f.o.b. Africa; and $300-$310 per short ton for yellowfin tuna shipped directly from Japan. (Suisan Tsushin, April 25, 1963.)

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TUNA EXPORT QUOTAS FOR OVERSEAS BASES, FISCAL YEARS 1963 AND 1964:

The Japanese Fisheries Agency announced on April 9, 1963, that effective Fiscal Year (FY) 1964 (April 1964-March 1965), it was granting new tuna export quotas totaling 25,500 short tons annually to the three Japanese overseas-based operations at New Caledonia (7,500 tons), Fiji Islands (9,000 tons), and American Samoa (9,000 tons). For FY 1963 (April 1963-March 1964) the American Samoa and Fiji-based Japanese enterprises would only be granted export quotas of 4,500 short tons each.

The annual export quota of 9,000 short tons allotted for the American Samoa-based operation is in addition to the existing quota of 18,000 tons already allotted for operations based on that island. The additional 9,000-ton quota is being granted to one of the large Japanese fishing companies and the Central

Tuna Export Quotas for Japanese Overseas-Based Tuna Operations, FY 1963 and 1964

Locality	Fiscal Years	
	1963	1964
	. . . (Short Tons) . . .	
Tutuila, American Samoa	22,500	27,000
Levuka, Fiji Islands	4,500	9,000
Noumea, New Caledonia	7,500	7,500
Penang, Malaya	6,000	6,000
Espiritu Santo, New Hebrides . . .	6,000	6,000
Total	46,500	55,500

Tuna Cooperative (composed of vessel owners who were granted special 99-ton tuna-vessel licenses in late 1962 under the Government's plan to aid the depressed coastal fishery), which are expected to employ a total of about 30 fishing vessels. Their catches are to be delivered to the United States tuna-canning plant presently under construction on American Samoa (second of its kind), and which is expected to begin operations sometime after July 1963. (Suisan Keizai Shimbun & Suisan Tsushin, April 10, 1963.)

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TUNA FISHING BASE AT FIJI ISLANDS:

Plans for the joint Japanese-British tuna venture in Levuka, Fiji Islands, were developing steadily during April 1963. That base, which is to be managed by the South Pacific Ocean Fisheries Cooperative, was recently granted a tuna production quota of 4,500 short tons for FY 1963 (April 1963-March 1964), with the quota allocation to be doubled to 9,000 tons in FY 1964. The Cooperative plans to operate 30 tuna vessels (under 100 tons gross) from the Fijian base, of which 13 vessels will be newly built. The Cooperative has been authorized a loan of 108 million yen (US$300,000) from the Japanese Government for the construction of 3 vessels, and has obtained an informal loan approval for the remaining 10 vessels.

Landings at the Fijian base are to be delivered to the jointly-established Pacific Fishing Company at Levuka, where they will be frozen for export to the United States. Construction of the cold-storage plant for this company is expected to start soon with completion scheduled for December 1963. The plant will have a daily freezing capacity of 50 tons, ice-making capacity of 30 tons, and a storage capacity of 2,000 tons (another Japanese newspaper reported 3,000 tons). Japanese investments in the Pacific Fishing Company total 270 million yen (US$750,000)--contributed by three Japanese trading firms. (Nihon Keizai Shimbun, April 23; Hokkai Suisan, April 29, 1963.)

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Japan (Contd.):

OPERATORS OF TUNA MOTHERSHIPS WITH PORTABLE CATCHER VESSELS FORM ASSOCIATION:

Japanese firms, operating tuna motherships with portable catcher vessels, on March 28, 1963, formed an Association to be known as the "Portable Fishing-Vessel Type Tuna-Mothership Operators Association." The new Association is made up of 17 firms with 38 motherships. The new Association will become a member of the Japan Federation of Tuna Fisheries Operators Associations. (Japanese newspaper, March 29, 1963.)

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TUNA MOTHERSHIP TO BE CONVERTED FOR NORTH ATLANTIC TRAWLING:

The tuna mothership Tenyo Maru No. 3 (3,500 gross tons), which operated in the South Pacific Ocean in the vicinity of the Fiji Islands, returned to Tokyo with 2,700 metric tons of frozen fish, consisting of 970 tons of albacore, 700 tons of yellowfin, 470 tons of spearfish, 300 tons of other tunalike fish, and 330 tons of other fish. After unloading, the Tenyo Maru proceeded to Shimonoseki in southern Japan, where the vessel was scheduled to be converted into a stern trawler for bottomfish operations in the northwestern Atlantic Ocean in July or August 1963. (Suisan Tsushin, April 23, 1963.)

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TUNA MOTHERSHIP TO FISH OFF MEXICAN COAST:

A Japanese fishing company was reported to be planning on dispatching its tuna mothership Keiyo Maru (3,700 gross tons) to the eastern Pacific Ocean tuna-fishing grounds off the coast of Mexico in June 1963, on a 220- to 230-day trip. The catch target is 2,000 tons of fish. The actual fishing will be conducted by the eight 20-ton portable catcher vessels which the mothership will transport to the fishing grounds. This type of mothership operation, in which only the portable catchers are used in the fishing, increases mobility and is said to be more efficient than the regular tuna mothership operation. (Hokkai Suisan, April 22, 1963.)

Under Japanese tuna mothership regulations established in September 1962, portable-vessel-carrying tuna motherships over 2,000 gross tons are classified as Class II motherships. Vessels in this category are not permitted to engage directly in fishing and must use portable catchers in the actual fishing.

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SECOND TUNA SEINER EQUIPPED WITH POWER BLOCK:

A second Japanese tuna vessel, the Hayabusa Maru (180 gross tons), was undergoing conversion to have a power block installed for purse-seine fishing in April 1963. The Hayabusa Maru was scheduled to depart for the skipjack fishing grounds off the coast of northern Japan in late April together with three other purse seiners, including Kenyo Maru (238 gross tons) the first Japanese vessel equipped with a power block. (Suisan Keizai Shimbun, April 10, 1963.)

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TUNA BEHAVIOR NEAR OCEAN FLOTSAM STUDIED:

A report titled "On the Drifting Substances as a Means of Foretelling Oceanographic and Fishing Conditions of Skipjack and Tuna in the the Adjacent Waters of Japan," was made in April this year by a team of the Tokai University Fisheries Research Laboratory. The report (No. 1 of the research in environments affecting induction of skipjack and tuna) was presented at an annual meeting of the Society of Scientific Fisheries of Japan held at Tokyo University.

According to the report, flotsams are found mainly along the flow-path of the Kuroshio Current presumably coming from the South Sea islands or the southeastern outskirts of Japan. The appearance, distribution and movement of the flotsam varies a great deal each year due to variations in the way the Kuroshio Current runs. Most of the flotsam consists of drifting wood but generally is so varied as to include airplane fuel tanks, tires, and other objects. The investigation revealed that skipjack, yellowfin, big-eyed, and longfin tuna remained close to the flotsam and it was found that the tuna followed the flotsam regardless of any change in the sea area concerned. It was reported that the Tokai University Laboratory is to conduct an investigation during 1963, on the distribution and migration of a type of shearwater, a migratory bird which appeared regularly and in great numbers at the summer albacore fishing grounds, but whose appearance has decreased greatly in recent years. Bird-bindings are to be introduced from the United States for use in tagging and releasing the birds with cooperation of fishermen.

Japan (Contd.):

Editor's Note: Similar studies on tuna behavior near floating objects were conducted by the U. S. Bureau of Commercial Fisheries Biological Laboratory, Honolulu, Hawaii.

Note: See Commercial Fisheries Review, November 1962 p. 22; December 1962 p. 31.

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EXPORTS OF CANNED FISHERY PRODUCTS, JANUARY-OCTOBER 1962:

Total Japanese exports of canned fishery products in January-October 1962 were about 7.4 percent higher than in the similar period of 1961. The increase was due primarily to a 70.0 percent increase in the exports of salmon trout.

Table 1 - Japanese Frozen Fishery Products Export Target for Fiscal Year 1963

Product	FY 1963 Export Qty.	FY 1963 Target Value2/	FY 1962 1/ Actual Qty.	FY 1962 1/ Export Value2/
	Metric Tons	US$ 1,000	Metric Tons	US$ 1,000
Tuna	174,400	57,184	144,129	48,449
Swordfish	7,700	5,700	7,315	5,538
Salmon	2,000	2,000	1,523	1,628
Trout	1,200	1,080	1,062	972
Shrimp	2,000	3,200	1,729	2,726
Other	45,000	11,250	42,886	10,706
Total	232,300	80,414	198,644	70,019

1/Figures for FY 1962 are estimates.
2/Based on f.o.b. prices in Japan.

(1) Seek to have the United States lower her import duty on canned tuna in oil from the 35 percent (ad valorem) rate to the lower rate of 12.5 percent presently imposed on canned tuna in brine, and on canned crab from 22.5 percent (ad valorem) to 10 percent.

Japanese Canned Fishery Products Exports, January-October 1962

Product	January-October 1962				January-October 1961
	United States	Canada	Other Countries	Total	Total
	(Cases)1/				
Crab meat	136,211	6,281	198,385	340,877	423,606
Tuna:					
In oil	-	183,756	929,108	1,112,864	1,359,197
In brine	2,023,407	-	-	2,023,407	2,127,426
Other types	1,646	8,835	321,057	331,538	203,144
Total tuna	2,025,053	192,591	1,250,165	3,467,809	3,689,767
Mackerel-pike	37,794	785	767,726	806,305	249,678
Sardine	20,978	13	91,791	112,782	270,961
Horse-mackerel	48	-	350,576	350,624	641,594
Salmon trout	103,994	182	1,643,858	1,748,034	1,030,331
Other fish	60,353	31,283	502,302	593,938	541,126
Shellfish	271,348	106,454	55,982	433,784	475,429
Other aquatic products	9,350	160	12,698	22,208	11,318
Grand total	2,665,129	237,749	4,973,483	7,876,361	7,333,810

1/Tuna in oil and in brine cans in standard cases (48 7-oz. cans) and salmon trout in standard cases of (96 7-oz. cans); other products in actual cases.

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EXPORT TARGETS FOR FROZEN AND CANNED FISHERY PRODUCTS, FY 1963:

The Japanese Ministry of International Trade and Industry (MITI), after meeting with the Agricultural and Fisheries Products Export Committee (composed of Government and industry members) on March 19, 1963, set the frozen fish products export target for FY 1963 (April 1963-March 1964) at 232,300 metric tons valued at US$80.4 million. At that meeting, industry members on the Committee are reported to have urged the Japanese Government to establish adequate Government facilities for studying the occurrence of green meat in frozen tuna or, as an alternative measure, subsidize private organizations to conduct this study.

At another meeting (March 22) between MITI and the same Export Committee the export targets for canned food products were discussed. Following the meeting, MITI recommended an export target of 15,792,000 cases (valued at US$158 million).

The proposed export targets for canned and frozen fish products recommended by MITI were to be submitted to the Supreme Export Trade Council (headed by the Prime Minister), which was expected to act on the recommendation in April.

Together with the proposed export targets, MITI was reported to be planning on submitting to the Council the following proposals in regard to canned fish products:

(2) Seek to have the United States eliminate the present limitations placed by her on the amount of canned tuna in brine that can be imported under the 12.5 percent (ad valorem) rate. (Note: At present, imports into the United States not in excess of 20 percent of the United States domestic pack of canned tuna during the preceding calendar year are dutiable at 12.5 percent ad valorem. Imports in excess of 20 percent of the United States pack are dutiable at 25 percent ad valorem.

Table 2 - Japanese Canned Fishery Products Export Target for Fiscal Year 1963

Product	FY 1963 Export Target Qty.	FY 1963 Export Target Value2/	FY 1962 1/ Actual Export Qty.	FY 1962 1/ Actual Export Value2/
	1,000 Cases	US$ 1,000	1,000 Cases	US$ 1,000
Tuna	4,250	34,912	3,924	32,121
Salmon	1,710	51,124	2,046	70,967
Crab	440	11,077	459	11,331
Sardine	500	3,625	182	1,440
Saury	1,370	7,773	1,089	6,369
Mackerel	562	3,398	417	2,860
Shellfish	1,855	14,527	1,684	12,578
Other3/	5,105	31,520	5,198	31,348
Total	15,792	157,956	14,999	169,014

1/Figures for FY 1962 are estimates.
2/Based on f.o.b. prices in Japan.
3/Mainly canned mandarin orange.

Japan (Contd.):

(3) Seek to include as payment for reparations to the Philippines, Burma, and Indonesia, the following canned fish products: Sardine, saury, jack mackerel, squid, and salmon (particularly pink salmon). (Suisan Keizai Shimbun, March 21 and 24; Suisan Tsushin, March 25, 1963.)

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INCREASE OF EXPORTS OF CANNED SHRIMP PROPOSED IN FY 1963:

Four large Japanese fishing companies have submitted a request to the Japanese Ministry of Agriculture and Forestry to place canned shrimp on the list of marine products under export control. The Ministry is expected to consider this request at the Export Marine Products Promotion Deliberation Council meeting scheduled to be held in June or July 1963.

According to the request submitted to the Ministry, the canned shrimp production target for FY 1963 (April 1963-March 1964) would be set at 620,000 cases (converted to 24 7-oz. cans/cs.), of which 600,000 cases would be exported (United States and Canada, 440,000 cases; Great Britain, 120,000 cases; other countries 40,000 cases).

Japanese Canned Shrimp Exports, Fiscal Years 1960-62

Destination	Quantity		
	1962	1961	1960
	(Actual Cases)		
United States	169,284	26,512	2,004
Canada	71,446	16,130	384
United Kingdom	88,102	10,056	2,944
Others	25,020	11,058	6,880
Total quantity	353,852	63,756	12,212
Total value	$2,377,408	$473,858	$106,433

Exports of canned shrimp increased sharply from only 12,212 cases valued at $106,433 in fiscal year 1960 to 353,852 cases valued at $2,377,408 in the fiscal year ending March 31, 1963. (Suisan Tsushin, March 30, 1963.)

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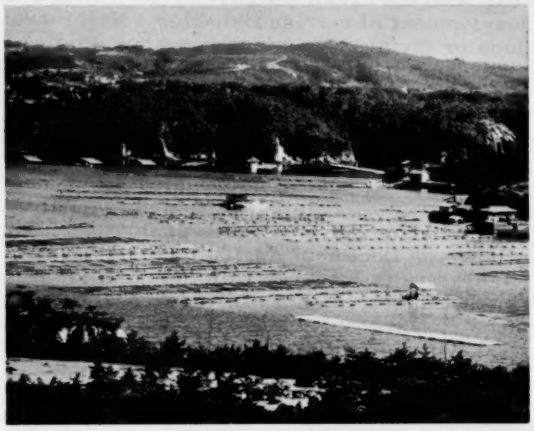
FISHERIES LABORATORIES AND EDUCATIONAL INSTITUTIONS:

Two University of Kentucky professors travelling in Japan under a United States Agency for International Development contract have reported on the fisheries laboratories and fisheries educational institutions as follows:

"Japan is the leading fishing nation of the entire world. It is natural, therefore, that the participants had high expectations and in visiting this country they were not disappointed. Of the many fishery installations visited, only those which especially stand out in the mind of the writer are described.

"I. Pearl Research Laboratory: This laboratory is located in Kashiko-jima in Mie Prefecture. It was established by the Ministry of Agriculture and Forestry in 1955 for the purpose of promoting the pearl culture industry. Although pearl farms occur in nearly 30 prefectures, the center of the industry has its location in the area of Mie Prefecture. At the present time there are over 3,000 pearl farms in Japan which comprise a total area of over 12,000 hectares (29,652 acres). Approximately 200 million pearl oysters (Pinctada martensii) are utilized each year for pearl culture purposes. The annual value of cultured pearls exported from Japan closely approaches $36 million.



Pearl oyster rafts.

"The present method of culturing pearls involves the insertion of a foreign particle or nucleus, usually a perfectly spherical bit of mussel shell, along with a small piece of living mantle tissue in the body of the oyster. The transplanted mantle tissue then grows around the nucleus thereby forming a saclike structure which subsequently secrets successive layers of mother of pearl (nacre) upon the nucleus. One year is sufficient for production of small pearls, but longer periods are required for larger ones. In general, pearls are not gathered until the nacre layer surrounding the nucleus is at least ten percent greater than the original diameter of the nucleus.

Japan (Contd.):

"One of the most interesting developments in this field is the discovery that certain fresh-water species of mussels possess the characteristics of producing an excellent quality of pearl. Since various ecological and environmental factors affecting the growth of aquatic animals can be controlled more easily in small fresh-water ponds than in the sea, it is quite possible that this method will become more prominent in the future.

"II. Tokai Regional Fisheries Research Laboratory: This facility was established in 1949 with the major purpose of promoting the development of marine fisheries. Major sections or divisions in which research studies are being conducted are Marine Resources, Population Dynamics and Statistics, Oceanography, Marine Propagation, Fishing Gears and Methods, Fish Preservation, Marine Products Utilization, Biochemistry, and Hydrology. Each of the major divisions listed above are staffed with extremely qualified personnel, most of whom have a degree of Doctor of Science or Doctor of Agriculture. Also, the Laboratory is equipped with the most modern scientific instruments. In addition, there are three oceanographic vessels, two of which exceed 200 tons in size. Two more specific examples of projects which are being carried out are (1) biological and oceanographical researches into marine resources, and the population dynamics thereof, to determine the maximum sustained productively that can be utilized without risking the danger of depleting the resource; and (2) research into the theory and practice of processing fish flesh into preservable food, extraction of vitamines, and utilization of wastes for animal foods. Needless to say, the quality of research conducted at this station is excellent.

"III. Technical Fisheries High School: This school is located at Misaki and it is supported and operated by the prefecture in which it is located. At present there are 350 students enrolled, but this will be increased to 600 as soon as construction of additional building is completed. The regular course extends over a period of three years, but an additional two-year special course of training is available for those qualified and interested in specializing in more responsible positions such as boat captain etc. Although students are accepted from all over Japan, they all must have completed Junior High School. The school is staffed with approximately 50 professional teachers. The facilities available at this institution leave little to be desired. Some of the facilities include: a training ship (160 tons) fully equipped with fishing gear and another larger ship now under construction, a walk-in quick freeze and cold-storage rooms, a large ice plant, a complete canning plant to process and can fish which are taken during the training cruises, a large machine shop, and a mock-up or demonstration fishing vessel class room in which all major power components of a ship are actually installed and operate. The writer was impressed with the high level of training attained by these teen-age lads. Again, it is not difficult to understood why Japan is the leading fishing nation.

"IV. Tokyo University of Fisheries: In Japan there are at least 13 institutions which offer degrees in fisheries. However, the Tokyo University of Fisheries, by far, offers the most thorough and varied training. This institution has a total of 250 faculty or staff members and approximately 1,000 students. Competition among students is keen. Severe selection of high school graduates applying for admission to this university is practiced-out of every 7 applicants only 1 is accepted.

"This University has three faculties: (1) Faculty of Fishing, (2) Faculty of Technology, and (3) Faculty of Pisciculture. Generally speaking, all students take general education and basic science courses for the first two years after which they may select their area of specialization (one of the three faculties). Students who successfully complete the regular four-year course are awarded the degree of Suisan Gakushi (Bachelor of Fisheries). Also, a limited number of graduates may take a one-year post graduate course, but no advanced degree or title is given for this extra period of study. The facilities of this university are similar in nature to those listed for the Technical Fisheries High School, but much greater in scope. For example, there are three training ships, the largest of which exceeds 1,000 tons. In addition, the three faculties have six different training stations which are staffed and equipped to train students in the fields of fishing, manufacturing, or marine and freshwater fish culture. The fisheries library at this institution contains over 80,000 books and journals. The institution regularly publishes (six issues per year)--The Journal of the Tokyo University of Fisheries which consists of research studies con-

Japan (Contd.):

ducted by the staff." (United States AID, Regional Branch, Tokyo, April 4, 1963.)

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FISH-MEAL FACTORYSHIP TO OPERATE IN BERING SEA:

The Japanese fish-meal factoryship Gyokuei Maru (10,350 gross tons) departed for the eastern Bering Sea on April 10, 1963, from Hakodate, Japan, The 30 catcher vessels assigned to that factoryship left Japan on April 6. Production target of the fleet is 10,800 metric tons of fish meal. (Nihon Suisan Shimbun, April 12, 1963.

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PRODUCTION OF FISH SAUSAGE AND HAMS, 1962:

The Japanese Fish-Meat Sausage Association with 70 manufacturing members announced in March, that the production of fish hams and sausages in 1962 amounted to 101,907 metric tons, 11.9 percent more than in 1961. Prior to 1962, production of fish hams and sausages had increased about 20-30 percent annually. In 1962, 76,008 tons of fish sausage and 25,899 tons of fish hams were produced. (Japanese newspaper, March 21, 1963.)

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IMPORTS OF SOVIET-PRODUCED HERRING INCREASED:

An agreement between Japan and the Soviet Union calls for the importation of 1,500 metric tons of Soviet herring in 1963. This is an increase in imports of 400 tons over 1962 and the largest amount since Japan first purchased Russian herring 4 years ago. Under the contract negotiated in Moscow by the Japanese trade delegation, which included representatives of the Federation of Hokkaido Fisheries Cooperatives, Japan will pay US$95 a ton for fresh herring and $117.50 a ton for salted herring, port of delivery Soviet Union.

The new agreement was the result of an offer made by the Soviet Union to increase her herring export quota, following conclusion of a 700-ton export agreement with Japan in September 1962. The fisheries cooperatives planned to dispatch a fleet of small freezerships to the Soviet Union in May this year to transport the herring back to Japan. (Suisan Keizai Shimbun, April 10, 1963.)

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PERMISSION SOUGHT TO FISH EXPERIMENTALLY FOR KING CRAB IN GULF OF ALASKA:

Eight Japanese fishing companies have filed applications for experimental fishing for king crabs in the Kodiak Island area in the Gulf of Alaska. Experimental fishing on a small scale was permitted south of the Alaska Peninsula by the North Pacific Fisheries Commission in the fall of 1962. Exploratory bottomfish fishing is authorized for the Akebono Maru No. 51.

In the Gulf of Alaska, "box-net" fishing gear is the only type of gear permitted for king-crab fishing under Canada's fishing regulations. The Japanese consider this gear inefficient, but have now decided to fish for king crab experimentally provided one or more of the applications are approved. (Suisan Tsushin, March 27, 1963.)

* * * * *

NEW MARINE RESOURCES PROTECTION ASSOCIATION:

The Japanese Fisheries Agency has revealed plans to establish a Government-sponsored foundation to promote the principle of the conservation of marine resources. There are several conservation organizations sponsored by civilians. Existing organizations concerned with conservation are being consolidated with the new organization. The exception is the Salmon Resources Protection Association which is continuing to work separately but is joining in the new organization as an important constituent. The Government will contribute ¥20,000,000 (US$55,555) to the foundation and the same amount is being contributed by industry.

On March 22, the second foundation committee meeting was held under the chairmanship of the Japanese Fisheries Society. An authoritative Fisheries Agency official predicted that the Japanese Marine Resources Protection Association will be founded about the middle of April. (Japanese newspaper, March 25, 1963.)

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Japan (Contd.):

SALMON FISHERMEN'S ASSOCIATION TO SEND MISSION TO UNITED STATES AND CANADA:

The Nikkeiren, a Japanese association of high seas salmon gill-net fishermen attached to motherships, has decided to send a two-man mission to the United States and Canada in order to explain the Association's views of the high seas salmon fishery to the public of those countries. The views emphasize, in particular, that the Association does not favor unrestrained salmon fishing even if salmon is removed from abstention in the North Pacific Fisheries Convention.

The mission was expected to start on the tour late in May and a representative of Japan Seamen's Union will be included. The tour is scheduled to include a study of the United Kingdom's market for canned red salmon. (Japanese newspaper, March 25, 1963.)

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NEW SPONGE SUPPLIERS SOUGHT:

Greek sources have announced that three metric tons of Italian sponges were unloaded in Japanese ports during December 1962 and January 1963. This was said to be the first time that Italian sponges had made a direct appearance on the Japanese market. It was also reported that Japanese sponge merchants had passed through Greece on their way to Turkey, Syria, and Lebanon, where they were seeking sponges for direct shipment to Japan. (Alieia, March 1963.)

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VESSELS ASSIGNED FOR RESEARCH ON SALMON AND KING CRAB:

The Japanese Government plans to assign a total of 17 vessels to the Okhotsk Sea, Japan Sea, Bering Sea, and the North Pacific Ocean (including the Gulf of Alaska) to conduct biological investigations on salmon and king crab. The fleet of 17 vessels will be made up of research and training vessels belonging to the national research laboratories, fisheries colleges, and prefectural fisheries high schools. Sixteen of the vessels are to be assigned to salmon research and one to king crab studies in the Okhotsk Sea. Data collected by those vessels are to be submitted to the International Northwest Pacific Fisheries Commission (Japan and Soviet Union). (Minato Shimbun, April 12, 1963.)

Typical Japanese king-crab mothership and trawlers.

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JOINT SALES GROUP CONSIDERED FOR MARKETING WHALE OIL:

Six Japanese fishing companies engaged in the production of whale oil are studying the possibility of forming a joint sales company for the purpose of maintaining orderly marketing of whale oil abroad. At their recommendation, the Japanese Government had designated whale oil as one of 13 fishery products whose exports would be regulated (beginning April 1, 1963) so as not to disrupt overseas market conditions.

Annual whale oil production in Japan is reported to be around 150,000 metric tons, of which 75-80 percent is exported. (Minato Shimbun, March 27, 1963.)

日本

Republic of Korea

FISHERIES TRENDS, MARCH 1963:

The United States Overseas Mission-supported Fish Marketing Center in Pusan was about completed as of March 15, 1963, but the dock providing the only approach was in a state of extreme disrepair. Delays in the financing of a new dock have necessitated continued use of the present facility.

The Korean Fisheries Experiment Station is very successfully channeling its findings into private industry and the cooperatives. Eight shrimp-packing plants are already earning substantial amounts of foreign exchange. (United States Embassy, Seoul, March 15, 1963.)

Latvia

WHALE MEAT USED FOR MAKING SAUSAGES:

Sausages made from Antarctic whale meat are now being produced in Latvia. Three types are being prepared; cooked, half-smoked, and liver. Beef, pork, and fat are blended with the whale meat in the production of the sausages. (Sovetskaya Latvia, April 12, 1963.)

Mexico

BAJA CALIFORNIA LANDINGS OF SPINY LOBSTERS, 1962/63 SEASON:

The "legal" landings of spiny lobsters (whole) in Baja California for the season beginning October 1, 1962, and ending March 15, 1963, amounted to about 1.7 million pounds. The "legal" landings do not include landings retailed directly by the fishermen and by some of the fishery cooperatives who are not members of the Federacion Regional de Sociedades Cooperativos de la Industria Pesquera which has 11 members.

The "legal" landings this past season amounted to 1,673,443 pounds and included 1,371,762 pounds of medium (medida), 184,280 pounds of large (burro), 73,391 pounds of extra large (caballon), 8,117 pounds of small, and 35,893 pounds of dead (muerto) spiny lobsters. In the 1961/62 season the legal production amounted to 1,561,054 pounds. (United States Consul, Tijuana, April 4, 1963.)

Mozambique

IMPORTS OF FISHERY PRODUCTS, 1961-1962:

Mozambique's imports of fishery products in 1962 were up 6.4 percent in quantity and 9.7 percent in value from those in the previous year. Imports of canned fish showed the greatest increase in both quantity and value in 1962. (United States Consulate, Salisbury, March 22, 1963.)

Netherlands

ANTARCTIC WHALING RESULTS, 1962/63 SEASON:

The management of the Netherlands Whaling Company in Amsterdam has released preliminary production data for its 1962/63 Antarctic whaling expedition which was headed by the factoryship Willem Barendsz. They stated that although the expedition took several very large whales, the final results were disappointing since the number of units caught were below the maximum allowed. The captain of the Willem Barendsz reported that only 20 blue whales were caught and that they seemed to be exceedingly scarce. (United States Consulate, Amsterdam, April 25, 1963.)

Note: See Commercial Fisheries Review, July 1962 p. 87.

Netherlands Whaling Company Production in Antarctic, 1961/62 and 1962/63 Seasons

Product	Season	
	1/1962/63	1961/62
	(Metric Tons)	
Whale oil	10,527	12,155
Sperm oil	2,927	2,918
Meat meal	1,275	1,726
Frozen meat	1,108	1,582
Meat for Japanese refrigerating ship	7,284	7,932

1/Preliminary.

Nigeria

IMPORTS OF CERTAIN FISHERY PRODUCTS, 1961 AND JANUARY-OCTOBER 1962:

Imports of fishery products (fresh and frozen, cured, and dried) amounted to about 66.2

Mozambique's Imports of Fishery Products, 1961-1962

Product	1962			1961		
	Quantity	Value		Quantity	Value	
	1,000 Metric Tons	1,000 Contos	1,000 U.S. Dollars	1,000 Metric Tons	1,000 Contos	1,000 U.S. Dollars
Sardines	.9	13.5	467.9	.8	11.6	402.1
Other fishery products:						
Fresh fish	1.3	11.4	395.1	1.1	9.4	325.8
Canned fish	1.4	22.3	773.0	1.1	16.8	582.3
Cured fish	6.8	55.2	1,913.3	6.8	54.4	1,885.6
Dried cod fish	1.3	23.7	821.5	1.2	22.7	786.8
Total imports of fishery products	11.7	126.1	4,370.8	11.0	114.9	3,982.6

Note: Mozambique conto equals US$34.66.

Nigeria (Contd.):

Imports of Certain Fishery Products by Nigeria, 1961 and January-October 1962

Type of Product	January-October 1962			1961		
	Quantity	Value 1/		Quantity	Value 1/	
	1,000 Lbs.	NL	US$1,000	1,000 Lbs.	NL	US$1,000
Fresh and frozen	2,630	109,985	308	4,380	234,561	657
Salted, dried, and smoked	276	18,056	51	378	27,771	78
Stockfish	58,075	5,914,982	16,562	61,440	7,564,055	21,179

1/One Nigerian pound equals US$2.80.

million pounds valued at US$21.9 million in 1961. Most of the fresh and frozen fish was imported from the Soviet Union (probably landed in part at Nigerian ports by Soviet vessels), and the cured products largely from Norway and Iceland. The most important item was stockfish. The import trade in cured fishery products (smoked, salted, and air-dried) is partly through large importing firms and partly through hundreds of small and medium-size firms able to engage in this type trade without expensive storage facilities. (United States Embassy, Lagos, April 6, 1963.)

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MARKET FOR CANNED FISH:

A report by the Australian Trade Survey Mission to West Africa states that there are good prospects in Nigeria for marketing canned fish.

Canned fish may be freely imported under open general licenses and foreign exchange is available. Imports are financed on irrevocable letter of credit terms, and on sight draft terms where principals are well known. The Nigerian pound is on parity with sterling. (Fisheries Newsletter, April 1963.)

Norway

FISHERY PRODUCTS EXPORTS WORLD'S SECOND HIGHEST IN 1961:

Norway in 1961 earned more money from export of fish and fish products than any other country except Japan, according to an April 29, 1963, report by the Food and Agriculture Organization (FAO).

According to FAO, the Norwegians exported 455,900 metric tons valued at about $139 million. Those earnings were second only to the $188.2 million that Japan, the world's leading fishing nation in both total catch and exports, earned from fishery exports of 415,700 tons. The higher Japanese earnings on less weight were largely accounted for by exports of good quality Japanese-caught frozen and canned tuna.

Although Norway in 1961 ranked only sixth in national catch--1.5 million tons as compared to Japan's 6.7 million tons or Peru's 5.2 million tons--the Norwegians have long been leaders in international trade in fish and fish products. The Norwegians normally export half or more of their annual catch.

Fresh, chilled or frozen fish led Norway's fish exports by weight in 1961 (101,700 tons valued at $31.4 million), but dried, salted, or smoked fish (74,600 tons valued at $39.9 million), carried the greater value.

The balance of Norway's 1961 fish exports were made up of crustaceans and molluscs (6,600 tons valued at $9.8 million); fish products and preparations (38,300 tons valued at $20.7 million); oils and fats of aquatic origin (106,300 tons valued at $21.7 million); and fish meals for animal feeding (128,400 tons valued at $15.5 million).

In 1958, Norway exported 566,400 tons of fishery products valued at $148.5 million and in 1959, 558,900 tons valued at $151.8 million. Norway's record year for exports of fishery products was 1957 when 644,400 tons was exported valued at $164.4 million which exceeded Japan's exports in both tonnage and value.

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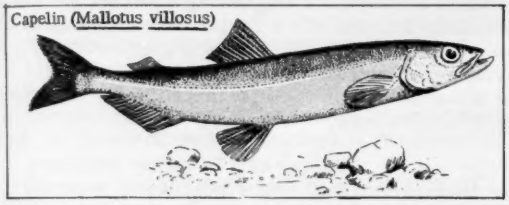
FISHERY TRENDS, APRIL 1963:

Lofoten Cod Fishery: The cod fishery in the Lofoten waters of Norway yielded a total catch of only 28,302 metric tons during the 1963 season, as compared to 38,850 tons in the previous season. The ex-vessel value of the 1963 catch amounted to Kr. 35 million (US$4,895,000). A total of 22,620 tons of the 1963 catch was being sun-dried in the open air. The dried cod will be sold as stockfish.

Norway (Contd.):

Capelin Fishery: Toward the end of the Lofoten season, some of the cod fishermen sailed northward to Finnmark to try their luck in the coastal fishery for capelin which is used by fish-oil reduction plants. The fishery was very poor until the end of April 1963 when large schools of capelin were found. In the


Capelin (Mallotus villosus)

course of a few days, some 70 vessels landed about 4,000 tons of capelin. It was expected that some 50 purse seiners would enter the fishery if the good catches were maintained. (News of Norway, May 2, 1963.)

Note: Norwegian kroner 7.15 equals US$1.00.

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PRODUCTION FROM 1962/63 ANTARCTIC WHALING SEASON SHARPLY LOWER:

Production (preliminary data) of whale and sperm oil from the 1962/63 Antarctic whaling season by Norway's 4 whaling fleets amounted to 183,345 barrels of whale oil and 41,300 barrels of sperm oil. In the 1961/62 Antarctic whaling season, Norway's 7 whaling fleets produced 498,717 barrels of whale oil and 19,587 barrels of sperm oil.

Production of whale and sperm oil by the 4 other nations participating in the 1962/63 Antarctic whaling season were: United Kingdom 67,260 barrels of whale oil and 13,100 barrels of sperm oil; Japan 666,336 barrels of whale oil and 48,682 barrels of sperm oil; U.S.S.R. 329,127 barrels of whale oil; and Netherlands 54,397 barrels of whale oil. Production of whale oil by the U.S.S.R. and the Netherlands is estimated on the basis of the 1962/63 catch of blue-whale units and the 1961/62 oil yield per blue-whale unit. The production of sperm oil by the U.S.S.R. and Netherlands Antarctic whaling fleets was unavailable as of April 18. (United States Embassy, Oslo, April 18, 1963.)

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WHALE OIL PRODUCTION (ANTARCTIC) SOLD IN ADVANCE:

Norwegian expeditions produced 30,557 metric tons of whale oil during the 1962/63 Antarctic season. Of that production, 30,000 tons had been sold in advance for Kr. 36 million (US$5,035,000). In addition to whale oil, the Norwegian Antarctic expeditions in 1962/63 produced 6,883 tons of sperm oil, 21,744 tons of frozen whale meat, and 2,860 tons of whale meal. (News of Norway, April 25, 1963.)

Note: Norwegian kroner 7.15 equals US$1.00.

Okinawa

LICENSES GRANTED TO IMPORT TUNA VESSELS FROM JAPAN:

According to the Japanese press, the Government of Okinawa on February 28, 1963, issued vessel import licenses to Okinawa fishing firms, authorizing them to import tuna-fishing vessels from Japan. The import licenses were granted following the Japanese Government's decision to approve the export of tuna vessels totaling 2,250 tons to Okinawa. The Okinawan firms are expected to purchase a total of 7 fishing vessels. It is reported they have already signed purchase contracts for 3 Japanese tuna vessels and and are expected to sign for 2 more vessels.

Included among the fishing vessels so far contracted for export to Okinawa are the Sasshu Maru (490 gross tons) and the Iijima Maru (359 gross tons). Another tuna vessel (285 gross tons) is also scheduled to be constructed for export to Okinawa. The Okinawan fishing firms are reported planning to operate most of the newly acquired tuna vessels in the Atlantic Ocean. Their catches are expected to be delivered to Japanese trading firms for export primarily to Italy and the United States. (Suisan Tsushin, April 9, 1963.)

Panama

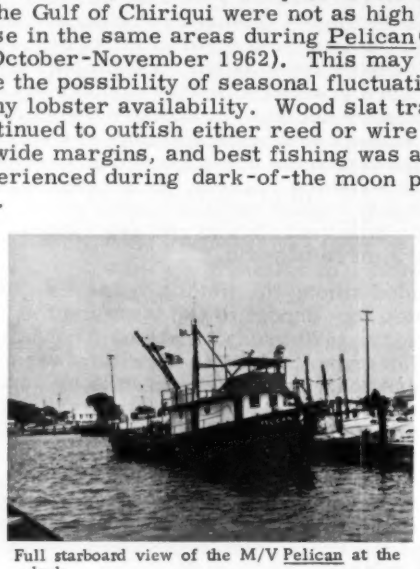
SPINY LOBSTER EXPLORATORY FISHING PROJECT CONTINUED:

M/V "Pelican" Cruise 10 (February 19-March 8) and Cruise 11 (March 19-April 3, 1963): The one-year survey for stocks of spiny lobsters along the Caribbean and Pacific Coasts of Panama, which was initiated late in August 1962, was continued in March and April this year by the chartered commercial fishing vessel Pelican. The survey is being conducted by the U. S. Bureau of Commercial Fisheries through an interagency

Panama (Contd.):

agreement with the U. S. Agency for International Development (AID) Mission to Panama as part of the Alliance for Progress Program.

Objectives of March-April 1963 cruises were: (1) reassess the potential of areas of the Chiriqui Gulf on the Pacific Coast where earlier explorations had resulted in good catches, and (2) spread exploratory coverage from those areas to other portions of the Chiriqui Gulf. In addition, a few traps were set in the Gulf of Panama for comparisons. Catch rates varied during the cruises from 0 (in the Gulf of Panama) to slightly over 1 lobster per 2 trap-days effort (near the Paridas Islands, Gulf of Chiriqui). Catch rates in the Gulf of Chiriqui were not as high as those in the same areas during Pelican Cruise 7 (October-November 1962). This may indicate the possibility of seasonal fluctuation in spiny lobster availability. Wood slat traps continued to outfish either reed or wire traps by wide margins, and best fishing was again experienced during dark-of-the moon periods.



Full starboard view of the M/V Pelican at the dock.

Cruise 10: A total of 509 spiny lobsters was taken from 860 traps that were successfully fished--a total of 2,477 trap days at 156 stations. The best catch, achieved during a short period of simulated-commercial trap fishing near the Paridas Islands was 19 spiny lobsters from 30 trap-days effort. In addition to the trap catches, 7 trawling stations yielded catches of 11 spiny and 5 rock lobsters, and 7 lobsters were taken during one diving station.

Male spiny lobsters continued to outnumber females by roughly 2:1, and remained larger and heavier. Average males weighed 20 ounces and measured 88 millimeters (3.5 inches) in carapace length, whereas average females weighed 12 ounces and measured 72 millimeters (2,8 inches). Sampling showed, however, that 33 percent of the female weight was tail meat, as against only 26 percent of the male weight. Wood slat traps continued to outfish wire traps by nearly 3:1 and reed traps by nearly 4:1, and showed only slight wear after 6 months of fishing effort, while the reed traps were beginning to deteriorate seriously and the wire traps have become badly misshapen. The covering growths of barnacles and other marine organisms on the wood traps seemed to improve their fishing effectiveness.

Cruise 11: A total of 174 spiny lobsters was taken from 642 traps that were successfully fished for 1,259 total trap days at 132 stations in the Gulf of Chiriqui. Individual sets of traps were fished for periods varying from 1 to 4 days. Short sets yielded best catches per trap hour. The best catch consisting of 51 lobsters came from a 3-day set of 30 wood traps near the Paridas Islands during simulated commercial fishing trials. An 83-trap, 3-day set in the Gulf of Panama was unproductive.

During simulated commercial fishing operations, traps were joined in strings of three with 15-fathom connecting lines. This decreased setting and hauling times to where 60 traps could be set in 15 minutes and hauled in 90 minutes, but it increased chances of trap loss. Results of experiments wherein the number of traps per area was increased from the usual 150-250 square foot spacing did not show increased catch rates from greater trap concentration. Sex ratios and average weights, sizes, and yields were equivalent to those indicated for Cruise 10. Ten additional spiny lobsters (Panulirus gracilis) and 11 rock lobsters (Scyllarides sp.) were taken during 9 trawl drags.

Note: See Commercial Fisheries Review, January 1963 p. 109 and April 1963 p. 71.

Peru

FISH MEAL AND OIL INDUSTRY TRENDS, 1962:

In 1962, fish meal became Peru's most valuable export. During 1960 and 1961, fish meal shipments ranked fourth by value among Peruvian exports. The combined value of exports of all types of fishery products accounted for nearly 23 percent of Peru's ex-

Peru (Contd.):

port income in 1962, a considerable increase over the previous year when such shipments accounted for only 14 percent of the value of that country's exports.

At the end of 1962, there were more than 6,000 vessels engaged in fishing along the coast of Peru. A total of 242 plants engaged in fish meal, fish oil, and canned fish production processed 98 percent of the total catch. In 1962, a total of 1,500,000 metric tons of fishery products was produced in Peru, of which approximately 88 percent was exported and 12 percent was consumed domestically.

From 1960 through 1962, production of fish oil increased approximately 160 percent while fish meal production increased about 100 percent. Greatly improved extraction processes helped boost fish oil production. During the same period, total exports of fish oil and fish meal jumped 270 percent and 108 percent respectively. Forecasts indicate that in 1963, production of fish meal will increase about 5 percent and production of fish oil some 10 percent over the records set in 1962. But production of sperm whale oil and meal is expected to decline.

Table 1 - Peru's Supply and Distribution of Fish Meal, 1960-63

	1/1963	2/1962	2/1961	1960
	(Metric Tons)			
Supply:				
Opening stocks	178,552	157,434	46,985	45,882
Production	1,155,000	1,100,000	839,815	528,256
Total supply	1,333,552	1,257,434	886,800	574,138
Distribution:				
Exports	3/1,200,000	1,055,882	708,366	507,042
Apparent domestic consumption	25,000	23,000	21,000	20,111
Total distribution	1,225,000	1,078,882	729,366	527,153
Closing stocks	108,552	178,552	157,434	46,985

1/Forecast.
2/Preliminary.
3/Apparent export availability.

The production of fish meal in Peru is roughly divided among production centers as follows: Callao (40 percent), Chimbote (30 percent), and the ports and inlets of Supe, Culebras, Carquin, Ilo, Huacho, Chancay, Huarmey, and Casma (30 percent). Fish oil is produced mainly in Callao and Chimbote.

The leading buyer of Peruvian fish meal in 1962 was the Netherlands, followed by West Germany and the United States. The Netherlands was also the leading buyer of Peruvian fish oil.

In 1962, the Consorcio Pesquero del Peru S. A. (marketing organization for Peruvian

Table 2 - Peru's Exports of Fish Meal and Whale Meal by Country of Destination, 1961-62

Commodity and Country of Destination	1962			1961		
	Quantity	Value		Quantity	Value	
	Metric Tons	1,000 Soles	US$1,000	Metric Tons	1,000 Soles	US$1,000
Fish Meal:						
United States	167,313.3	425,248.3	15,855.8	118,639.9	225,076.0	8,392.1
Belgium	43,331.2	107,136.1	3,994.7	30,698.0	54,132.8	2,018.4
Brazil	750.0	1,890.1	70.5	3,320.1	7,748.5	288.9
Finland	2,100.1	4,690.0	174.9	2,670.1	5,387.2	200.9
France	49,860.4	128,062.7	4,774.9	23,032.7	45,352.2	1,691.0
United Kingdom	76,207.4	193,365.4	7,209.8	76,522.9	144,306.3	5,380.6
Netherlands	281,006.8	707,058.5	26,363.4	204,019.1	377,000.6	14,056.8
Hungary	4,350.1	11,009.0	410.5	2,300.1	5,555.7	207.1
Italy	41,871.9	106,595.5	3,974.5	15,115.4	27,883.4	1,039.7
Japan	30,073.2	75,411.9	2,811.8	22,745.0	42,199.1	1,573.4
Malaya	100.0	252.0	9.4	2,868.0	4,784.5	178.4
Mexico	18,345.8	47,471.5	1,770.0	11,424.5	23,672.1	882.6
Poland	17,000.5	43,733.9	1,630.7	1,463.0	3,382.5	126.1
Sweden	12,550.3	31,993.0	1,192.9	4,225.0	9,356.6	348.9
Spain	31,456.0	80,801.4	3,012.8	15,273.5	26,445.6	986.1
Venezuela	7,140.4	17,790.7	663.3	6,160.1	11,391.2	424.7
West Germany	251,818.9	643,591.3	23,996.9	150,491.8	278,726.0	10,392.6
Yugoslavia	10,100.4	25,617.8	955.2	3,600.1	8,773.6	327.1
Other countries	10,505.8	26,546.3	989.8	13,796.7	27,393.3	1,021.4
Total fish meal	1,055,882.5	2,678,265.4	99,861.8	708,366.0	1,328,567.2	49,536.8
Sperm Meal:						
United States	3,264.8	5,502.3	205.1	4,447.1	6,104.4	227.6
Colombia	-	-	-	100.0	171.6	6.4
United Kingdom	500.2	898.5	33.5	-	-	-
Total sperm meal	3,765.0	6,400.8	238.6	4,547.1	6,276.0	234.0
Whale Meal:						
United States	1/	1/	1/	400.0	536.2	20.0
Japan	1/	1/	1/	200.0	257.4	9.6
Total whale meal	1/	1/	1/	600.0	793.6	29.6

1/Not available.
Source: Callao Customshouse.

Peru (Contd.):

Table 3 - Peru's Exports of Inedible Marine Oils by Country of Destination, 1961-62

Commodity and Country of Destination	1962			1/1961		
	Quantity	Value		Quantity	Value	
	Metric Tons	1,000 Soles	US$1,000	Metric Tons	1,000 Soles	US$1,000
Whale Oil, Refined:						
United States	-	-	-	711.3	2,479.1	92.4
Total whale oil	-	-	-	711.3	2,479.1	92.4
Sperm Oil:						
United States	2,013.1	8,226.0	306.7	4,622.1	18,082.9	674.2
United Kingdom	4,860.0	17,665.9	658.7	2,427.5	8,984.3	335.0
Netherlands	1,154.9	4,011.1	149.6	1,923.4	6,260.8	233.4
Norway	1,308.3	4,559.8	170.0	-	-	-
Italy	-	-	-	89.7	322.0	12.0
Total sperm oil	9,336.2	34,462.8	1,285.0	9,062.7	33,650.0	1,254.6
Fish Oil:						
United States	2,855.8	7,173.8	267.5	1,018.5	3,315.6	123.6
Denmark	16,633.8	40,185.7	1,498.4	18,748.0	54,787.6	2,042.8
France	1,380.9	3,367.5	125.6	1,885.7	4,728.8	176.3
United Kingdom	13,556.1	31,165.1	1,162.0	3,279.4	8,846.7	329.8
Netherlands	52,194.8	119,647.8	4,461.2	43,909.4	123,194.8	4,593.4
Norway	24,977.2	58,581.3	2,184.3	11,036.7	33,916.3	1,264.6
Sweden	850.0	2,189.6	81.6	2,818.3	7,981.2	297.6
Other countries	15,520.6	48,349.6	1,802.8	19,610.0	53,980.9	2,012.7
Total fish oil	127,969.2	310,660.4	11,583.4	102,306.0	290,751.9	10,840.8

1/Revised.
Source: Callao Customshouse.

fish meal producers), paid its members about US$105 per short ton for fish meal. In early 1963, fish meal export prices were from $124 to $126 per metric ton (c.i.f. European ports).

Substantial progress was made in 1962 toward improving the quality of fish meal. A number of stick water evaporation units were installed in order to improve operating efficiency and reduce over-all production costs. Steps were taken to improve and standardize the packing of fish meal. (United States Embassy, Lima, April 15, 1963.)

Note: Peruvian soles 26.82 equal US$1.00.

* * * * *

PROPOSED TAXES ON FISH MEAL EXPORTS REVISED:

The Peruvian fish-meal industry will pay higher taxes in 1963, but the increases carry some exceptions and will probably not be as large as was previously announced. Tax provisions in Decree-Law No. 14414, dated March 4, 1963 (published in El Peruano on March 7), have been substituted for the 25-soles (93 U. S. cents) per short ton tax on anchoveta which was announced in late 1962 (Decree-Law No. 14265). The earlier Decree-Law was not implemented because of vigorous protests by the Peruvian fish-meal industry and a 22-day vessel tie-up by anchoveta fishermen. The vessel tie-up was not settled until the new tax law was announced.

It was estimated that the anchoveta landings tax, which has been repealed, would have added about US$5.90 to the cost of producing a ton of fish meal. The new sliding-scale tax established by Decree-Law No. 14414 is a charge on fish-meal exports which depends in part on export prices f.o.b. Peruvian ports. The new tax applies to fish meal exported after January 1, 1963.

It appears that the new law may have only increased the actual cost of exporting Peruvian fish meal by about $1.85 a metric ton in early April 1963, when the export price was about $103 a metric ton. (Although, under Decree-Law No. 14414, Peruvian shippers will have to pay a tax of about $5.00 a ton on fish meal exported in April 1963, they will be entitled to a refund of about $3.15 a ton under certain circumstances.)

Decree-Law No. 14414 requires Peruvian fish-meal shippers to pay an 11-percent tax on the difference between export prices (f.o.b. Peruvian ports) and the current base price established by Government authorities. But this charge is considered a payment on account of business and commercial profit taxes, and such payments will be refunded only if they exceed the final profit tax assessment.

The new law levies an additional tax of 6.5 percent on the difference between the selling price and the Government's base price, but this charge applies only when the selling price exceeds the base price by more than 25 percent. When the tax is applicable, however, it is not refundable. On March 1, 1963, the Peruvian Government set the fish-meal base price for export tax purposes at 1,811 soles per short ton which amounts to 1,996 soles ($74.45) per metric ton.

The new taxes in Decree-Law No. 14414 are separate from and in addition to those export taxes established by Decree-Law No. 13825 (January 2, 1962). The taxes in both laws are computed in the same manner, except that Decree-Law No. 13825 involves higher rates--14 percent refundable charge, and 15 percent nonrefundable charge when applicable. In early April 1963, the combined rates under both laws would result in a tax on Peruvian fish-meal exports of $13.28 per metric ton, of which $7.14 would be refundable and $6.14 would be nonrefundable. (United States Embassy, Lima, April 17, 1963.)

Note: Peruvian soles 26.82 equals US$1.00.

* * * * *

U. S. VESSEL PURCHASED FOR TUNA-CANNING FACTORYSHIP:

According to a Japanese periodical, two canning firms in Peru have purchased a vessel from a United States company for $400,000 and plan to utilize it as a tuna-canning factory-

Peru (Contd.):

ship. They plan to produce about 100,000 cases of canned tuna per month.

The vessel bought by the 2 companies has 2 precookers, 1 line for tall pound cans, can-and-case assembling machinery, etc. The tuna will be packed by hand with production estimated at 3,500 cases per day.

In addition, the vessel has quick-freezing machinery of 20 tons a day capacity and a cold-storage facility of 1,000 tons. The vessel will purchase fish every day on the fishing grounds. It was reported that for the time being the freezing equipment would not be used. (Suisan Tsushin, March 9, 1963.)

Portugal

CANNED FISH EXPORTS, 1962:

Portugal's total exports of canned fish in 1962 were slightly larger than in the previous year, due mainly to heavier shipments of canned mackerel. Although down somewhat from the previous year, canned sardines still accounted for 78.6 percent of the 1962 exports of canned fish.

Portuguese Canned Fish Exports, 1961-1962

Product	1962		1961	
	Metric Tons	1,000 Cases	Metric Tons	1,000 Cases
In Oil or Sauce:				
Sardines	59,102	3,110	60,538	3,186
Chinchards	2,054	108	2,282	120
Mackerel	4,258	170	1,605	64
Tuna and tuna-like	3,647	121	3,226	115
Anchovy fillets	5,832	583	5,195	519
Others	326	17	247	13
Total	75,219	4,109	73,093	4,017

Portugal's principal canned fish buyers in 1962 were Germany with 16,177 metric tons, followed by the United Kingdom with 9,652 tons, Italy with 9,507 tons, and the United States with 8,334 tons. (Conservas de Peixe, February 1963.)

* * * * *

CANNED FISH PACK, 1962:

Portugal's total pack of canned fish in oil or sauce in 1962 was about the same as in the previous year. A decline of 9.9 percent in the sardine pack in 1962 was offset by an increase in the packs of all other species.

Portuguese Canned Fish Pack, 1961-1962

Product	1962		1961	
	Metric Tons	1,000 Cases	Metric Tons	1,000 Cases
In Oil or Sauce:				
Sardines	54,632	2,875	60,616	3,190
Chinchards	2,816	148	2,252	118
Mackerel	7,566	302	3,211	128
Tuna and tuna-like	5,399	180	4,375	156
Anchovy fillets	5,244	524	4,985	498
Others	661	35	247	13
Total	76,318	4,064	75,686	4,103

The pack of mackerel more than doubled in 1962. (Conservas de Peixe, February 1963.)

* * * * *

CANNED FISH INDUSTRY CONCERNED OVER RISING COMMON MARKET TARIFFS:

The Portuguese canned fish industry is almost entirely dependent on exports and in recent years West Germany has been its largest customer. But Portuguese canned fish shipments to West Germany fell from 18,168 metric tons in 1961 to 15,857 tons in 1962. The market is threatened by the tariff policies of the European Economic Community (EEC), according to an editorial in the March 1963 issue of Conservas de Peixe, a Portugese trade journal. (On July 1, 1962, Germany raised import duties on canned fish from countries outside the EEC to 17.3 percent ad valorem. At the same time, Germany reduced import duties on canned fish from EEC countries to 9.5 percent ad valorem.)

The editorial recommended that the Portuguese Government subsidize local canned fish exporters for the difference between EEC internal and external duties, pending resumption of Portuguese negotiations for association with the Common Market. (United States Embassy, Lisbon, April 26, 1963.)

* * * * *

FISHERY TRADE WITH SOVIET BLOC IN 1962:

Preliminary data on Portuguese exports of fishery products to several Soviet Bloc coun-

Portuguese[1/] Fishery Exports to Soviet Bloc Countries, 1962

Commodity and Country of Destination	Quantity	Value	
	Metric Tons	Esc. 1,000	US$1,000
U. S. S. R.:			
Canned:			
Sardines	0.5	6.0	0.2
Anchovies	0.1	2.0	0.1
Rumania:			
Canned anchovies	51.4	1,170.0	40.6
Poland:			
Canned sardines	7.6	109.0	3.8

1/Includes Azores Islands and Madeira Islands.
Note: Portuguese escudos 28.85 equals US$1.00.

Portugal (Contd.):

tries in 1962 show that these were limited to small shipments of canned anchovies and sardines, most of which went to Rumania and Poland. Exports to the Soviet Bloc accounted for only a small fraction of the 75,219 metric tons of canned fish exported by Portugal during 1962. Portugal did not import fishery products from Communist countries during 1962. (United States Embassy, Lisbon, April 26, 1963.)

South Africa Republic

POWER BLOCKS FOR LAMPARA SEINING PURCHASED:

Fifty power blocks were ordered from a United States West Coast manufacturer by South African fishermen within two months of a demonstration in Cape Town harbor.

Members of one crew, in their first attempt, recovered their lampara seine net in 10 minutes compared with the usual 30 to 40 minutes, according to a South African periodical. The periodical also stated:

"It has been estimated that one man, on a slippery deck, can exert about one-third of a horsepower on a net when hauling it aboard. A crew of 10 can therefore exert about 3 hp. The horsepower exerted by the power block is about 8 and is equivalent to a crew of 24 men handling the net.

"The lampara seine net, as used by South African boats, has two 'wings' with the bag in the middle. To operate these it is necessary to install two power blocks, one forward slung from a derrick stepped on or near the mast, and the other from a derrick stepped on a kingpost just forward of the wheelhouse." (Fisheries Newsletter, April 1963.)

South-West Africa

WALVIS BAY PILCHARD FISHERY TRENDS, JANUARY 1963:

During the January meeting of the South-West African Executive Committee, a spokesman for the Walvis Bay fishing industry made representations for an increased pilchard quota this year. He said that a temporary increase in the quota would not harm the pilchard resources off the coast, and the factories this season would be in a position to process a greater quantity of fish without having to enlarge their existing plant.

In an interview, he stated that the Executive Committee gave him a sympathetic hearing. The matter would still, he said, have to be referred to the Fisheries Advisory Board which was due to meet in Cape Town in February.

Last year the pilchard quota at Walvis Bay was 435,000 tons divided equally among the six factories.

The 1963 pilchard fishing season at Walvis Bay was expected to start during the first week of February when the first factory was to go into operation.

The Vice-Chairman of the Walvis Bay Fishing Factories Executive Committee stated that the industry expected to clear all stocks of the 1962 fish meal production by early February. All the fish oil production had already been cleared but there was still a considerable stock of unsold canned fish on hand at the end of January. However, he anticipated that most of this stock would be cleared before the main canning season started in June.

In the 1963 fishing season, production of fish meal would be stressed as all the anticipated production has already been sold. Negotiations were under way in January for the sale of the fish oil production.

The canning program in 1963 will be cut back on account of stocks already on hand and temporary poor market. (The South African Shipping News and Fishing Industry Review, February 1963.)

Sweden

FISH MEAL AND MARINE OIL INDUSTRY TRENDS, FISCAL YEAR 1962/63:

Fish Meal: The estimated Swedish supply of fish meal during fiscal year 1962/63 (July through June) was 9 percent greater than in the previous fiscal year. Imported fish meal in 1962/63 accounted for 69 percent of the total supply; over 85 percent of the supply was used for animal feed in Sweden, 14 percent

Sweden (Contd.):

was carried over, and less than 1 percent was exported.

Table 1 - Swedish Supply and Disposition of Fish Meal, Fiscal Years1/, 1961/62-1962/63

Item	2/1962/63	1961/62
	(1,000 Metric Tons)	
Supply:		
Stocks on hand, July 1	5.2	4.7
Production	6.0	5.5
Imports	25.0	22.9
Total supply	36.2	33.1
Disposition:		
Exports	0.3	0.3
Domestic consumption (animal feed)	30.9	27.6
Stocks on hand, June 30	5.0	5.2

1/Period from July 1 to June 30.
2/Estimated.

Table 2 - Swedish Imports of Fish Meal, Calendar Years, 1961-1962

Commodity and Country of Origin	1962	1961
	(Metric Tons)	
Herring Meal:		
Norway	2,229.3	9,447.4
Denmark	635.6	730.4
Iceland	280.0	840.0
Total herring meal	3,144.9	11,017.8
Unclassified Fish Meal:		
Norway	535.9	305.0
Iceland	2,733.4	5,766.8
United Kingdom	282.9	-
United States	22.0	37.1
Chile	2,986.0	1,586.0
Peru	13,829.5	3,479.0
Denmark	143.5	20.0
Other countries	3.5	-
Total unclassified fish meal	20,536.7	11,193.9

Marine Oils: The estimated Swedish supply of edible marine oils in fiscal year 1962/63 was 17 percent below the previous fiscal year due to a drop in imports. Sweden is dependent on foreign sources for the bulk of her marine oils. In calendar year 1962, Sweden's main suppliers of marine oils were West Germany, the United States, Norway, and Iceland (table 4).

Table 3 - Swedish Supply and Disposition of Edible Marine Oils, Fiscal Years1/, 1961/62-1962/63

Item	2/1962/63	1961/62
	(1,000 Metric Tons)	
Supply:		
Opening stocks, July 1	15.5	16.4
Production	3.0	3.0
Imports	35.0	45.2
Total supply	53.5	64.6
Disposition:		
Exports	15.5	15.9
Domestic consumption	21.0	33.2
Closing stocks, June 30	17.0	15.5

1/Period from July 1 to June 30.
2/Estimated.

Domestic consumption of edible marine oils in Sweden during fiscal year 1962/63 was expected to decline while exports were expected to continue at about the same level as in

Table 4 - Swedish Imports of Marine Oils, Calendar Years 1961-1962

Commodity and Country of Origin	1962	1961
	(Metric Tons)	
Whale Oil, Raw:		
Japan	1,976.1	7,563.3
Norway	6,146.9	-
Total whale oil	8,123.0	7,563.3
Sperm Oil, Raw:		
Norway	-	58.8
United Kingdom	-	45.8
Other countries	-	2.0
Total sperm oil	-	106.6
Herring Oil, Raw:		
Norway	21.8	12.1
Denmark	507.2	2,428.6
Iceland	4,711.2	3,667.9
West Germany	-	404.3
Total herring oil	5,240.2	6,512.9
Medicinal Oils:		
Norway	1,606.5	451.0
Denmark	245.6	73.9
Iceland	225.4	41.5
Japan	36.0	18.0
West Germany	56.1	-
Total medicinal oils	2,169.6	584.4
Unclassified Marine Oils:		
Norway	254.8	1,250.1
West Germany	12,208.2	7,813.2
Denmark	557.3	860.9
United States	11,601.1	10,879.8
Iceland	2,415.9	-
Peru	5.4	2,717.5
France	-	6.5
Total unclassified marine oils	27,042.7	23,528.0

Table 5 - Swedish Exports of Marine Oils, Calendar Years 1961-1962

Commodity and Country of Destination	1962	1961
	(Metric Tons)	
Herring Oil, Raw:		
Norway	1,629.6	1,632.0
Netherlands	-	61.5
Australia	23.3	36.8
West Germany	99.0	234.6
Denmark	-	210.0
Italy	40.9	74.7
Austria	10.2	13.6
Total herring oil	1,803.0	2,263.2
Hydrogenated Marine Fats and Oils:		
Norway	1,263.6	364.0
Denmark	2,707.0	1,177.9
Finland	351.5	727.7
United Kingdom	3,281.0	2,101.5
France	1,441.3	1,159.8
Switzerland	183.4	33.9
Austria	888.8	736.9
Jamaica	916.8	537.6
Trinidad	134.2	28.2
Morocco	432.6	556.0
Tunisia	131.0	72.2
Czechoslovakia	482.7	120.0
Hungary	300.6	-
Ireland	1,371.7	1,336.0
Belgium	25.0	150.1
Other countries	219.4	369.0
Total hydrogenated marine fats and oils	14,130.6	9,470.8
Unclassified Marine Fats and Oils:		
Norway	-	518.3
Denmark	-	302.3
Other countries	-	2.0
Total unclassified marine fats and oils	-	822.6

Sweden (Contd.):

the previous fiscal year. Sweden maintains a substantial export trade in hydrogenated marine fats and oils (table 5). (United States Embassy, Stockholm, April 11, 1963.)

Thailand

IMPORTS OF MARINE OILS, 1961-1962:

Thailand does not have a domestic marine oil industry and the country's marine oil imports are limited mainly to cod-liver oil. (United States Embassy, Bangkok, April 12, 1963.)

Thailand's Imports of Marine Oils by Country of Origin, 1961-1962

Commodity and Country of Origin	1962	1961
	. . . (1,000 Liters[1]) . . .	
Cod-liver oil:		
Norway	36.9	45.4
Japan	14.4	29.5
United States	12.5	15.4
West Germany	11.3	15.3
United Kingdom	1.4	18.9
Denmark	-	3.9
Netherlands	-	0.9
Total cod-liver oil	76.5	129.3
Unclassified marine oils:		
Japan	0.2	7.0
Taiwan	1.8	-
Total unclassified marine oils	2.0	7.0
Grand total	78.5	136.3

1/ 1,000 liters equals approximately 1 metric ton.

U.S.S.R.

BERING SEA KING-CRAB MOTHERSHIP FISHING FLEETS, 1963:

According to a Japanese periodical, the Soviet Union is believed to be sending three fleets, including a newly built 12,000-ton mothership for king-crab fishing in Bristol Bay in 1963. Last year two Soviet fleets operated in the same area and their motherships were larger than those of Japan and more catchers were used. (Suisan Tsushin, March 24, 1963.)

* * * * *

FISHING ACTIVITIES OFF ATLANTIC AND GULF COASTS, MARCH-APRIL 1963:

Seven Soviet stern trawlers were sighted on April 12, 1963, in the vicinity of Block Canyon off the northeastern United States coast, or about 70 miles south of Block Island, R. I. Five vessels were engaged in fishing and one vessel was towing another. The vessels were apparently using fine-meshed nets and taking whiting. One observed net haul was estimated to contain about 30,000 pounds of fish.

On March 19, 1963, a Soviet trawler (about 200 feet in length) was reported south of the Timbalier Bay area off the Louisiana coast. Yellow buoys were spread out in the water near the ship and what appeared to be synthetic netting was observed in the trawler's rigging.

Seven Soviet ships will soon be carrying out Soviet-Cuban fishing explorations in the Atlantic and other adjacent waters, the Havana, Cuba, radio reports. The work will be carried out under a new fishing agreement between the Soviet Union and Cuba. Under the pact, the Soviet Union also will aid in developing a fisheries school in Cuba by supplying 15 instructors and providing material and scientific equipment. (Unpublished sources and Press Reports.)

* * * * *

FLOUNDER STOCKS IN SOUTHEASTERN BERING SEA SURVEYED:

In February 1963, the Soviet fishery research vessel Vitiaz was surveying the distribution and migration of fish in the southeastern Bering Sea. Special attention was given to flounder migration into shallow waters to determine their concentrations during the spring season and to estimate this fishery's potential for future years. (Unpublished sources.)

* * * * *

WHALE FACTORYSHIP FISHING IN NORTH PACIFIC:

The Soviet whale factoryship Vladivostok and a fleet of catcher boats started fishing in the North Pacific during March 1963. The 17,000-gross-ton factoryship, manned by a crew of 400, can process both whales and fish. The whale-processing capacity is 1,700 metric tons of raw material daily; production capacity per day is 190 tons of whale oil, 72 tons of whale meal, and 45 tons of frozen whale meat. The fish-processing capacity is 500 tons of landings per day; production capacity per day is 100 tons of fish meal, 50 tons of frozen fish, 45 tons of frozen fillets,

U. S. S. R. (Contd.):

and 35 tons of fish oil. Equipped with engineering workshops and having a speed of 14 knots, the Vladivostok can operate the year round. The present trip by the vessel will last from March 1963 to November 1963. (Peche Maritime, January 20, 1963.)

United Kingdom

ANTIBIOTIC ICE IMPROVES QUALITY OF FISH LANDED:

A report has been issued on the laboratory tests carried out by the British Department of Scientific and Industrial Research on the fish treated with antibiotic ice during experimental trips by the Grimsby trawlers Ross Renown and Northern Sea.

The investigations show that the fish stowed for 16 days in antibiotic ice had all the quality characteristics of fish kept in ordinary ice for only 13 days. The treated fish, whether bulked, shelved, or boxed on board, generally showed a similar improvement over untreated fish of the same age.

In summarizing the results of the experiment, the report stated: "It can be said that the improvement in quality of the early-caught fish was of the order of two to three days." (Fish Trades Gazette, April 6, 1963.)

* * * * *

IMPORTS OF CANNED SALMON, 1961-62:

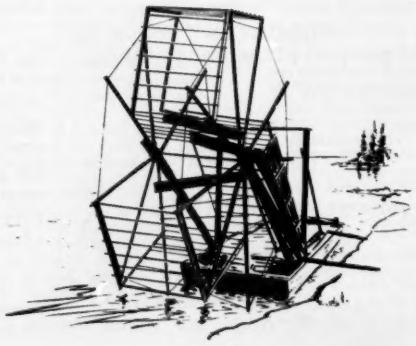
According to the Canadian Government's fishery attache stationed in London, Great Britain's imports in 1962 of canned salmon were valued at C$90 million. Of this amount, Japanese imports made up 79 percent, Canadian imports 11.2 percent, United States imports 5.7 percent, U. S. S. R. imports 3.9 percent, and imports from all other countries 0.1 percent. (Western Fisheries, March 1963.)

United Kingdom's Imports of Canned Salmon, 1961-62

Origin	Value	
	1962	1961
	.... (C$1,000)	
Japan	71,184	33,438
Canada	10,050	6,684
United States	5,151	4,101
Soviet Union	3,555	1,434
Others	120	174
Total	90,060	45,831

FISH WHEEL

This is a fishing device consisting of a series of lift nets attached to a circular frame operated by the current of a river. As a fish swims near the wheel, it is scooped up, slides toward the axle as the wheel turns, and is then deposited in a box or scow. Although not permitted to operate commercially, natives and traders along the Yukon and other northern rivers use them to catch their winter supply of food. This type of gear might also be called an "automatic dip net."



Fish wheel.

Note: Excerpt from Circular 109, Commercial Fishing Gear of the United States, for sale from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., single copy, 40 cents.

FEDERAL ACTIONS

Department of Commerce

AREA REDEVELOPMENT ADMINISTRATION

GRANT APPROVED FOR HARBOR IMPROVEMENTS IN NEW BEDFORD, MASSACHUSETTS:

A $375,000 public facility grant to help the City of New Bedford, Mass., make harbor and dock improvements, has been approved by The Area Redevelopment Administration (ARA) of the U. S. Department of Commerce.

The ARA grant and an additional $200,000 invested by the City of New Bedford will be used to dredge a 30-foot channel, construct dock bulkheads, and fill in a 3½-acre dock site. Part of the new facility will be leased to a private firm which plans to construct a freezer-cold storage plant at the dock site. In addition, another firm is building a pet food cannery near the harbor.

The new port facilities and industrial plants are expected to contribute substantially to the general economy of the area as well as to aid the commercial fisheries. The U. S. Bureau of Commercial Fisheries cooperated with ARA and local officials by providing technical advice and assistance in developing and reviewing the project plans and proposal.

SMALL BUSINESS ADMINISTRATION

LOANS TO FISHERY FIRMS:

In early 1963, it was reported that 60 loans totaling $4.5 million had been made to fishery products processors by the Small Business Administration (SBA) of the U. S. Department of Commerce since enactment of the Small Business Act of 1953. In addition, SBA made about 40 loans totaling $2.8 million to wholesale and retail fish distributors.

Department of Health, Education, and Welfare

FOOD AND DRUG ADMINISTRATION

STANDARDS OF IDENTITY FOR FROZEN RAW BREADED SHRIMP ESTABLISHED:

In order to promote fair dealing in the interest of consumers, standards of identity have been established for frozen raw breaded shrimp by an order of the U. S. Food and Drug Administration. The notice was published in the Federal Register on May 7, 1963. The order becomes effective 60 days after its publication in the Federal Register, except as to any provisions which may be stayed by proper objections. Interested parties had until June 6, 1963, to file objections to the new standards of identity.

The Food and Drug Administration has actually established two new standards of identity--one for the article with a minimum of 50 percent of shrimp (Sec. 36.30--breaded shrimp) and one for the article with a minimum of 70 percent of shrimp (Sec. 36.31--lightly breaded shrimp). Except for the shrimp content requirement, the new standards are identical in all respects.

The new standards of identity declare that the optional forms of shrimp which may be used in preparing either type of the frozen raw breaded product are: (1) fantail or butterfly; (2) butterfly, tail off; (3) round; (4) round, tail off; (5) pieces; and (6) composite units. Labeling requirements and definitions for each optional form of shrimp are included in the standards of identity.

The new standards of identity also define the kind of batter and breading ingredients and additives that may be used in preparing the product.

A notice of proposed rule making published in the Federal Register of March 31, 1961, set forth the petition of the National Fisheries In-

stitute, Inc., and the National Shrimp Breaders Association, Inc., for the establishment of a definition and standard of identity for frozen raw breaded shrimp.

The definitions and standards of identity as published in the Federal Register follow:

Title 21—FOOD AND DRUGS

Chapter I—Food and Drug Administration, Department of Health, Education, and Welfare

SUBCHAPTER B—FOOD AND FOOD PRODUCTS

PART 36—SHELLFISH

Frozen Raw Breaded and Lightly Breaded Shrimp; Definitions and Standards of Identity

The notice of proposed rule making published in the FEDERAL REGISTER of March 31, 1961 (26 F.R. 2722) set forth the petition of the National Fisheries Institute, Inc., 1614 20th Street NW., Washington 9, D.C., and the National Shrimp Breaders Association, Inc., 624 South Michigan Avenue, Chicago 5, Illinois, for the establishment of a definition and standard of identity for frozen raw breaded shrimp. The proposed standard of identity in that notice included a requirement that the proportion of shrimp in the finished food should not fall below 50 percent. The Commissioner of Food and Drugs has concluded that the interests of consumers will be served by establishing two standards of identity—one for the article with a minimum of 50 percent of shrimp and one for the article with a minimum of 70 percent of shrimp.

Upon consideration of the views and comments submitted and other relevant information, it is concluded that it will promote honesty and fair dealing in the interest of consumers to establish the definitions and standards of identity hereinafter set forth. Therefore, pursuant to the provisions of the Federal Food, Drug, and Cosmetic Act (secs. 401, 701, 52 Stat. 1046, 1055, as amended 70 Stat. 919, 72 Stat. 948; 21 U.S.C. 341, 371) and in accordance with the authority delegated to the Commissioner of Food and Drugs by the Secretary of Health, Education, and Welfare (25 F.R. 8625): *It is ordered:*

1. That the following definitions and standards of identity be established, by adding to Part 36 the following new sections:

§ 36.30 Frozen raw breaded shrimp; identity; label statement of optional ingredients.

(a) Frozen raw breaded shrimp is the food prepared by coating one of the optional forms of shrimp specified in paragraph (c) of this section with safe and suitable batter and breading ingredients as provided in paragraph (d) of this section. The food is frozen.

(b) The food tests not less than 50 percent of shrimp material as determined by the method prescribed in paragraph (g) of this section.

(c) The term "shrimp" means the tail portion of properly prepared shrimp of commercial species. Each shrimp unit is individually coated. The optional forms of shrimp are:

(1) Fantail or butterfly: This form is prepared by splitting the shrimp. The shrimp are peeled, except that tail fins remain attached and the shell segment immediately adjacent to the tail fins may be left attached.

(2) Butterfly, tail off: This form is prepared by splitting the shrimp. Tail fins and all shell segments are removed.

(3) Round: This form is the round shrimp, not split. The shrimp are peeled, except that tail fins remain attached and the shell segment immediately adjacent to the tail fins may be left attached.

(4) Round, tail off: This form is the round shrimp, not split. Tail fins and all shell segments are removed.

(5) Pieces: Each unit in this form consists of a piece or a part of a shrimp. Tail fins and all shell segments are removed.

(6) Composite units: Each unit in this form consists of two or more whole shrimp or pieces of shrimp, or both, formed and pressed into composite units prior to coating. Tail fins and all shell segments are removed. Large composite units, prior to coating, may be cut into smaller units.

(d) The batter and breading ingredients referred to in paragraph (a) of this section are the fluid constituents and the solid constituents of the coating around the shrimp. These ingredients consist of suitable substances which (1) are not food additives as defined in section 201(s) of the Federal Food, Drug, and Cosmetic Act; or (2) if they are food additives as so defined, they are used in conformity with regulations established pursuant to section 409 of the act. Batter and breading ingredients that perform a useful function are regarded as suitable, except that artificial flavorings, artificial sweeteners, artificial colors, and chemical preservatives, other than those provided for in this paragraph, are not suitable ingredients of frozen raw breaded shrimp. Chemical preservatives that are suitable are ascorbic acid, which may be used in a quantity sufficient to retard development of dark spots on the shrimp, and preservatives that may be used to retard development of rancidity of the fat content of the food: *Provided*, That any preservatives used to retard the development of rancidity of the fat shall not exceed 0.02 percent of the weight of the fat content of the finished food.

(e) The label shall name the food, as prepared from each of the optional forms of shrimp specified in paragraph (c) (1) to (6), inclusive, of this section, and following the numbered sequence of such subparagraph, as follows:

(1) "Breaded fantail shrimp." The word "butterfly" may be used in lieu of "fantail" in the name.

(2) "Breaded butterfly shrimp, tail off."

(3) "Breaded round shrimp."

(4) "Breaded round shrimp, tail off."

(5) "Breaded shrimp pieces."

(6) Composite units: If the composite units are cutlet-shaped, the name is "Breaded shrimp cutlets"; if stick-shaped (similar to breaded fish sticks), the name is "Breaded shrimp sticks"; if prepared in a shape other than cutlet or stick, the name is "Breaded shrimp _____," the blank to be filled in with the word or phrase that accurately describes the shape, but which is not misleading.

In the case of the names specified in subparagraphs (1) through (5) of this paragraph, the words in each name may be arranged in any order, provided they are so arranged as to be accurately descriptive of the food. The word "prawns" may be added in parentheses immediately after the word "shrimp" in the name of the food if the shrimp are of large size; for example, "Fantail breaded shrimp (prawns)." If the shrimp are from a single geographic area, the adjectival designation of that area may appear as part of the name; for example, "Breaded Alaskan shrimp cutlets."

(f) Wherever the name of the food, as prescribed in paragraph (e) of this section, appears on the label so conspicuously as to be easily seen under customary conditions of purchase, the label shall bear a prominent statement listing the common or usual names of the optional ingredients present in the coating, and such statement shall immediately precede or follow such name, without intervening written, printed, or graphic matter. If a spice that also imparts color is used, it shall be designated as "spice and coloring," unless the spice is designated by its specific name. If ascorbic acid is used to retard development of dark spots on the shrimp, it shall be designated as "Ascorbic acid added as a preservative" or "Ascorbic acid added to retard discoloration of shrimp." If any other preservative, as provided in paragraph (c) of this section, is used, such preservative shall be designated by its common name, followed by the statement "added as a preservative."

(g) The method for determining percentage of shrimp material referred to in paragraph (a) of this section is as follows:

(1) *Equipment needed.* (i) Two-gallon container, approximately 9 inches in diameter.

(ii) Two-vaned wooden paddle, each vane measuring approximately 1¾ inches x 3¾ inches.

(iii) Stirring device capable of rotating the wooden paddle at 120 r.p.m.

(iv) Balance accurate to 0.01 ounce (or 0.1 gram).

(v) U.S. standard sieve No. 20. 12 inch diameter.[1]

(vi) U.S. standard sieve, ½-inch sieve opening, 12 inch diameter.[1]

(vii) Forceps, blunt points.

(viii) Shallow baking pans.

(ix) Rubber-tipped glass stirring rod.

(2) *Procedure.* (i) Weigh the sample to be debreaded. Fill the container three-fourths full of water at 70° F.–

[1] The sieves shall comply with the specifications for wire cloth and sieve frames in "Standard Specifications for Sieves," published March 1, 1940, in L.C. 584 of the U.S. Department of Commerce, National Bureau of Standards.

80° F. Suspend the paddle in the container, leaving a clearance of at least 5 inches below the paddle vanes, and adjust speed to 120 r.p.m. Add shrimp, and stir for 10 minutes. Stack the sieves, the ½ inch mesh over the No. 20, and pour the contents of the container onto them. Set the sieves under a faucet, preferably with spray attached, and rinse shrimp with no rubbing of flesh, being careful to keep all rinsings over the sieves and not having the stream of water hit the shrimp on the sieve directly. Lay the shrimp out singly on the sieve as rinsed. Inspect each shrimp and use the rubber-tipped rod and the spray to remove any breading material that may remain on any of them, being careful to avoid undue pressure or rubbing, and return each shrimp to the sieve. Remove the top sieve and drain on a slope for 2 minutes, then remove the shrimp to weighing pan. Rinse contents of the No. 20 sieve onto a flat pan and collect any particles other than breading (i.e., flesh and tail fins) and add to shrimp on balance pan and weigh.

(ii) Calculate percent shrimp material:

$$\text{Percent shrimp material} = \frac{\text{Weight of debreaded sample}}{\text{Weight of sample}} \times 100 + 2.$$

§ 36.31 Frozen raw lightly breaded shrimp; identity; label statement of optional ingredients.

Frozen raw lightly breaded shrimp complies with the provisions of § 36.30, except that it contains not less than 70 percent of shrimp material, as determined by the method prescribed in § 36.30(g).

2. That the heading for Part 36 be changed to "Part 36—Shellfish."

Any person who will be adversely affected by the foregoing order may at any time within 30 days from the date of its publication in the FEDERAL REGISTER file with the Hearing Clerk, Department of Health, Education, and Welfare, Room 5440, 330 Independence Avenue SW., Washington 25, D.C., written objections thereto. Objections shall show wherein the person filing will be adversely affected by the order and specify with particularity the provisions of the order deemed objectionable and the grounds for the objections. If a hearing is requested, the objections must state the issues for the hearing, and such objections must be supported by grounds legally sufficient to justify the relief sought. Objections may be accompanied by a memorandum or brief in support thereof. All documents shall be filed in quintuplicate.

Effective date. This order shall become effective 60 days from the date of its publication in the FEDERAL REGISTER, except as to any provisions that may be stayed by the filing of proper objections. Notice of the filing of objections or lack thereof will be announced by publication in the FEDERAL REGISTER.

(Secs. 401, 701, 52 Stat. 1046, 1055, as amended 70 Stat. 919, 72 Stat. 948; 21 U.S.C. 341, 371)

Dated: May 1, 1963.

JOHN L. HARVEY,
Deputy Commissioner of Food and Drugs.

Department of the Interior

BUREAU OF INDIAN AFFAIRS

INDIAN COMMERCIAL FISHING REGULATIONS IN ALASKA:

In a "Notice of Proposed Rule Making" (Federal Register, April 30, 1963), the Bureau of Indian Affairs published regulations concerned with Indian and other native commercial fishing in Alaska. The "Notice of Proposed Rule Making" as it appeared in the Federal Register of April 30 follows:

DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

[25 CFR Part 88]

INDIAN COMMERCIAL FISHING IN ALASKA

Notice of Proposed Rule Making

Notice is hereby given that pursuant to the obligation imposed upon, and the authority vested in the Secretary of the Interior by 25 U.S.C. sections 2 and 9; 5 U.S.C. section 485; section 15 of the Act of March 3, 1891 (26 Stat. 1101; 48 U.S.C. § 358); the Presidential Proclamation of April 28, 1916 (39 Stat. 1777); section 2 of the Act of May 1, 1936 (49 Stat. 1250; 48 U.S.C. § 358a); and section 4 of the Act of July 7, 1958 (72 Stat. 339), as amended (73 Stat. 141), it is proposed to amend Part 88 of Title 25, Code of Federal Regulations. The purpose of the amendment is to govern Indian commercial fishing in Alaska.

It is the policy of the Department of the Interior wherever practicable, to afford the public an opportunity to participate in the rule making process. Accordingly, interested persons may submit written comments, suggestions or objections with respect to the proposed regulations, to the Commissioner, Bureau of Indian Affairs, Washington 25, D.C., within 30 days after the date of this notice in the FEDERAL REGISTER.

Part 88, Title 25, is hereby revised to read as follows:

Sec.
88.1 Purpose.
88.2 Annette Island Fisheries Reserve; definition; licenses.
88.3 Operation of fish traps by Metlakatla Indian Community.
88.4 Commercial fishing, Kariuk Indian Reservation.
88.5 Enforcement; violation of regulations; corrective action.

AUTHORITY: §§ 88.1 to 88.5 issued under 25 U.S.C. secs. 2, 9; 5 U.S.C. sec. 485; sec. 15 of the Act of March 3, 1891 (26 Stat. 1101; 48 U.S.C. § 358); the Presidential Proclamation of April 28, 1916 (39 Stat. 1777); sec. 2 of the Act of May 1, 1936 (49 Stat. 1250; 48 U.S.C. sec. 358a); sec. 4 of the Act of July 7, 1958 (72 Stat. 339), as amended (73 Stat. 141)

§ 88.1 Purpose.

The purpose of the regulations in this part is to regulate Indian and other native commercial fishing in Alaska, but they shall not be construed to limit any rights of Indians or other natives of Alaska not specifically covered hereby.

§ 88.2 Annette Island Fisheries Reserve; definition; licenses.

(a) *Definition.* The Annette Island Fisheries Reserve in Alaska is defined in the Presidential Proclamation of April 28, 1916 (39 Stat. 1777), as the waters within three thousand feet from the shore lines at mean low tide of Annette Island, Ham Island, Walker Island, Lewis Island, Spire Island, Hemlock Island, and adjacent rocks and islets, located within the broken line upon the diagram attached to and made a part of said Proclamation; and also the bays of said islands, rocks, and islets.

(b) *Licenses.* Members of the Metlakatla Indian Community, and such other Alaskan natives as have joined them or may join them in residence on the aforementioned islands, shall not be required to obtain a license to engage in commercial fishing in the waters of the Annette Island Fisheries Reserve.

§ 88.3 Operation of fish traps by Metlakatla Indian Community.

(a) *Number and location.* During 1963, and until the Secretary or his duly authorized representative determines otherwise, the Metlakatla Indian Community is permitted to operate not more than one trap per site for salmon fishing at any four of the following sites in the Annette Island Fisheries Reserve, Alaska:

(1) Annette Island at 55°15'09" north latitude, 131°36'00" west longitude.
(2) Annette Island at 55°12'52" north latitude, 131°36'10" west longitude.
(3) Annette Island at 55°02'47" north latitude, 131°38'53" west longitude.
(4) Annette Island at 55°05'41" north latitude, 131°36'39" west longitude.
(5) Annette Island at 55°01'54" north latitude, 131°38'36" west longitude.
(6) Annette Island at 55°00'45" north latitude, 131°38'30" west longitude.
(7) Annette Island at 54°59'41" north latitude, 131°36'48" west longitude.
(8) Ham Island at 55°10'13" north latitude, 131°19'31" west longitude.

(b) *Season.* Fishing for salmon with traps operated by the Metlakatla Indian Community is permitted only at such times as commercial salmon fishing with nets is permitted by order or regulation of the Alaska Board of Fish and Game for Commercial Fishing in Section 1–E of Fishing District No. 1. During any times when fishing with nets is prohibited by the State of Alaska in said Section 1–E of Fishing District No. 1 the traps shall be closed in accordance with the method prescribed in paragraph(c) (3) of this section.

(c) *Size, construction and closure*— (1) *Size.* When any part of a trap is in a greater depth of water than 100 feet, the trap as measured from shore at mean high tide to the outer face of the pot shall not extend beyond 900 feet.

(2) *Construction.* Poles shall be permanently secured to the webbing at each side of the mouth of the pot tunnel and shall extend from the tunnel floor to a height at least four feet above the water. A draw line shall be reeved through the lower end of both poles mentioned above and the upper end of one.

(3) *Method of closing.* The tunnel walls shall be overlapped as far as possible across the pot gap and the draw line shall be pulled tight and both secured so as to completely close the tunnel. In addition, 25 feet of the webbing of the heart on each side next to the pot shall be lifted or lowered in such manner as to permit the free passage of fish.

§ 88.4 Commercial fishing, Karluk Indian Reservation.

(a) *Definition.* The Karluk Indian Reservation includes all waters extending 3,000 feet from the shore at mean low tide on Kodiak Island beginning at the end of a point of land on the shore of Shelikof Strait about 1¼ miles east of Rocky Point and in approximate latitude 57°39′40″ N., longitude 154°12′20″ W.; thence south approximately 8 miles to latitude 57°32′30″ N.; thence west approximately 12½ miles to the confluence of the north shore of Sturgeon River with the east shore of Shelikof Strait; thence northeasterly following the easterly shore of Shelikof Strait to the place of beginning, containing approximately 35,200 acres.

(b) *Who may fish; licenses.* The waters of the Karluk Indian Reservation shall be open to commercial fishing by bona fide native inhabitants of the native village of Karluk and vicinity, and to other persons insofar as the fishing activities of the latter do not restrict or interfere with fishing by such natives. Such natives shall not be required to obtain a license to engage in commercial fishing in the waters of the Karluk Indian Reservation.

(c) *Salmon fishing; restrictions.* Commercial fishing for salmon by native inhabitants of the native village of Karluk and vicinity in the waters of the Karluk Indian Reservation shall be in accordance with the seasonal and gear restrictions of the rules and regulations of the Alaska Board of Fish and Game for Commercial Fishing in the Karluk District, except that: (1) Beach seines up to 250 fathoms in length may be used northeast of Cape Karluk; and (2) prior to July 1, fishing shall be permitted to within 100 yards of the Karluk River where it breaks through the Karluk Spit into Shelikof Strait.

§ 88.5 Enforcement; violation of regulations; corrective action.

(a) *Enforcement.* The regulations in this Part shall be enforced by any duly authorized representative of the Secretary. Any fish trap, vessel, gear, processing establishment or other operation or equipment subject to these regulations shall be available for inspection at all times by such representative.

(b) *Violation of regulations.* Whenever any duly authorized enforcement representative of the Secretary has reasonable cause to believe any violation of these regulations relating to fish traps has occurred, he shall direct immediate closure of the trap involved and shall affix an appropriate seal thereto to prevent further fishing. The matter shall be reported without delay to the Area Director, Bureau of Indian Affairs, who shall thereupon report and recommend to the Secretary appropriate corrective action.

(c) *Corrective action.* Any violation of these regulations relating to fish traps shall be ground for the temporary or permanent closure, as the Secretary may determine, of any or all traps authorized by § 88.3(a), or the withdrawal and rescission of the right to fish for salmon with traps at any or all sites authorized thereby.

STEWART L. UDALL,
Secretary of the Interior.

APRIL 24, 1963.

FISH AND WILDLIFE SERVICE

BUREAU OF SPORT FISHERIES AND WILDLIFE

NEW PESTICIDE-WILDLIFE LABORATORY DEDICATED:

A new U. S. Fish and Wildlife Service laboratory which may be destined to solve the pesticide-wildlife riddle and which will study diseases of wild animals, including those transmitted from animal to man, was dedicated April 25, 1963. The laboratory is at the Patuxent Wildlife Research Center, Laurel, Md.

The new facility, the Biochemistry-Wildlife Pathology Laboratory of the Bureau of Sport Fisheries and Wildlife, will accommodate a staff of scientists studying pesticide-animal relationships and wildlife disease. In recent years, those fields of research have assumed new dimensions in the conservation of natural resources. Because of the implications to human health and well-being, both are of high interest. The laboratory is the first research facility designed to determine ways and means to use chemicals without sacrificing wildlife. It has been under construction since March 1961.

The Bio-Chemistry - Pathology Laboratory at Patuxent Wildlife Research Center, Laurel, Maryland.

The Laboratory is located in a one-story building which has 25,000 square feet of floor space with an additional 14,000 square feet in the basement. The cost, without laboratory equipment but with facilities which are basic for research laboratories, was $475,800.

White House

OFFICE OF SPECIAL REPRESENTATIVE ESTABLISHED TO IMPLEMENT TRADE EXPANSION ACT OF 1962:

The President's Special Representative for Trade Negotiations (Mr. Herter) has organized several new interagency committees to advise him in the conduct of the Trade Agreements and Adjustment Assistance Program to be carried out under the Trade Expansion Act of 1962. The Act provided for a Cabinet-level interagency committee, called the Trade Expansion Act Advisory Committee (TEAAC). This Committee is chaired by Mr. Herter. The other members are the Secretaries of State, Interior, Treasury, Defense, Agriculture, Commerce, and Labor.

Three other committees were established with representation from those same agencies. The Trade Executive Committee (TEC), chaired by Mr. Herter's deputy, Mr. Gossett, has membership at the Assistant Secretary level. This Committee will serve as the operating arm of the program. Under it is a technical-level Trade Staff Committee (TSC), chaired by an official of Mr. Herter's office and including a representative of the Tariff Commission. The Trade Staff Committee will, as its name implies, do the necessary staff work for the Trade Executive Committee. Finally, a Trade Information Committee (TIC) was set up to hold public hearings and otherwise receive the views from interested parties.

Currently representing the Department of the Interior on the operating Committees are the Deputy Under Secretary and officials of the Resources Program Staff (TSC and (TIC). The U. S. Bureau of Commercial Fisheries participates by providing information and advisory services to the Resources Program Staff on matters involving trade and tariffs for fishery products.

Executive Order (11106) providing for the administration of the trade agreements program and related matters and Title 48 - Trade Agreements and Adjustment Assistance Programs, appeared in the Federal Register of April 20 and April 23, 1963, as follows:

Executive Order 11106

PROVIDING FOR THE ADMINISTRATION OF THE TRADE AGREEMENTS PROGRAM AND RELATED MATTERS

By virtue of the authority vested in me by the Trade Expansion Act of 1962 (76 Stat. 872), Section 350 of the Tariff Act of 1930, as amended (19 U.S.C. 1351), and Section 301 of title 3 of the United States Code, and as President of the United States, it is ordered that Executive Order No. 11075 of January 15, 1963 (28 F.R. 473), be, and it is hereby, amended as follows:

SECTION 1. Amend the heading of the order to read "ADMINISTRATION OF THE TRADE AGREEMENTS PROGRAM".

SEC. 2. In Section 1, substitute "*Definitions.* (a)" for "*Definition.*", and add the following new subsection (b):

"(b) As used in this order the term 'the trade agreements program' includes all activities consisting of, or related to, the negotiation or administration of trade agreements (other than treaties) concluded pursuant to the authority vested in the President by the Constitution, Section 350 of the Tariff Act of 1930, as amended, or the Act."

SEC. 3. Amend Section 2 to read as follows:

"SEC. 2. *Office of Special Representative.* (a) There is hereby established in the Executive Office of the President an agency which shall be known as the Office of the Special Representative for Trade Negotiations.

"(b) There shall be at the head of the said Office the Special Representative for Trade Negotiations provided for in Section 241 of the Act (hereinafter referred to as the Special Representative), who shall be directly responsible to the President.

"(c) There shall be in the said Office a Deputy Special Representative for Trade Negotiations with the rank of Ambassador, whose principal functions shall be to conduct negotiations under title II of the Act, and who shall perform such additional duties as the Special Representative may direct."

SEC. 4. In Section 3, amend subsection (b) to read as follows:

"(b) The Special Representative shall advise and assist the President in the administration of, and facilitate the carrying out of, the trade agreements program. In addition, the Special Representative shall advise the President with respect to non-tariff barriers to international trade, international commodity agreements, and other matters which are related to the trade agreements program."

SEC. 5. In subsection (c) of Section 3, substitute "trade agreements program" for "Act" in each place that word appears.

SEC. 6. In Section 3, delete subsection (i), redesignate subsection (h) as subsection (i), and insert the following new subsection (h):

"(h) After the President has entered into a trade agreement which provides for any new tariff concession, the Special Representative shall submit to the President, for transmission by him to each House of Congress, copies of such trade agreement, together with a draft of the statement relating thereto provided for in Section 226 of the Act. In addition, the Special Representative shall transmit to each House of Congress copies of agreements supplementary to trade agreements which do not provide for any new tariff concession, and of such other documents relating to the trade agreements program as he considers appropriate, together with a brief statement describing each such supplementary agreement or other document."

SEC. 7. In Section 3, add the following new subsection (1) at the end of the section:

"(1) The Special Representative shall prepare or have prepared for consideration by the President, in a form suitable for inclusion in title 48 of the Code of Federal Regulations, any proclamation which relates wholly or primarily to the trade agreements program. Any such proclamation shall be subject to the provisions of Executive Order No. 11030 of June 19, 1962 (27 F.R. 5847), except that such proclamation need not be submitted for approval to the Director of the Bureau of the Budget as provided in Sections 2 (a) and (b) of that order but may be transmitted directly to the Attorney General for his consideration as to both form and legality."

SEC. 8. In Section 4, redesignate subsection (f) as subsection (g), and insert the following new subsection (f):

"(f) Before making recommendations to the President under Section 242(b)(2) of the Act, the Committee shall, through the Special Representative, request the advice of the Adjustment Assistance Advisory Board, created by the provisions of Section 361 of the Trade

Expansion Act of 1962, concerning the feasibility of adjustment assistance to workers and firms."

SEC. 9. In Section 9, insert "or this order" after "the Act".

SEC. 10. Substitute "13(b)" for "12(b)" in Section 12(a), renumber Sections 11 and 12 as Sections 12 and 13, respectively, and insert the following new Section 11:

"SEC. 11. *Redelegation.* Delegations of authority made by this order to the Special Representative, the Secretary of Commerce, and the Secretary of Labor, and other assignments of authority made by this order to the Special Representative, shall be deemed to include the power of successive redelegation."

Section 2 of Executive Order No. 11075 of January 15, 1963 (28 F.R. 473), as amended by Section 3 of this order shall be deemed to have become effective January 15, 1963; and said Executive Order No. 11075 as amended shall be codified under title 48 of the Code of Federal Regulations.

JOHN F. KENNEDY

THE WHITE HOUSE,
April 18, 1963.

Title 48—TRADE AGREEMENTS AND ADJUSTMENT ASSISTANCE PROGRAMS

NOTE: A new Title 48, captioned as set forth above, is hereby established in the Code of Federal Regulations.

This title will set out Presidential actions taken with respect to the trade agreements program and the adjustment assistance program and will establish procedures related to the operation of such programs. The trade agreements program consists of the negotiation and administration of trade agreements entered into by the President, and especially under section 350 of the Tariff Act of 1930, as amended, and the Trade Expansion Act of 1962. The adjustment assistance program consists of the furnishing of financial and other assistance to firms and workers affected by increased imports due to tariff concessions granted under trade agreements.

In particular, this title will contain the text of all Presidential proclamations under the Trade Expansion Act of 1962 affecting United States tariffs and other import restrictions. This title also will establish the procedures whereby interested parties may make oral and written presentations to the Office of the Special Representative for Trade Negotiations on proposed trade agreements, and whereby firms and workers may, after investigation by the U.S. Tariff Commission, petition for adjustment assistance to the Department of Commerce and the Department of Labor, respectively.

The procedures of the U.S. Tariff Commission under the Trade Expansion Act of 1962, with regard to negotiation of trade agreements and the provision of adjustment assistance, are set out in Parts 201, 205, 206, and 207 of Title 19 of the Code of Federal Regulations.

ESTABLISHMENT OF CHAPTER COVERING PRESIDENTIAL DOCUMENTS

Pursuant to the final sentence of E.O. 11106 (28 F.R. 3911) a new Chapter I, Subchapter A, is established in Title 48, setting for the codified text of E.O. 11075 as amended and reading as follows:

Chapter I—Presidential Documents

SUBCHAPTER A—ORGANIC ORDERS

PART 1—ADMINISTATION OF THE TRADE AGREEMENTS PROGRAM

Sec.
1.1 Definitions.
1.2 Office of Special Representative.
1.3 Functions of Special Representative.
1.4 Trade Expansion Act Advisory Committee.
1.5 Tariff Commission.
1.6 Secretary of the Treasury.
1.7 Secretary of Commerce.
1.8 Secretary of Labor.
1.9 Committees and task forces.
1.10 Threat of impairment of national security.
1.11 Redelegation.
1.12 References.
1.13 Prior bodies and orders.

DERIVATION: The text of the sections in this part are derived from the text of E.O. 11075 (28 F.R. 473), as amended. Amendments are noted following sections affected.

§ 1.1 Definitions.

(a) As used in this part the term "the Act" means the Trade Expansion Act of 1962 (Public Law 87–794, approved October 11, 1962), exclusive, however, of chapters 2, 3, and 5 of title III thereof.

(b) As used in this part the term "the trade agreements program" includes all activities consisting of, or related to, the negotiation or administration of trade agreements (other than treaties) concluded pursuant to the authority vested in the President by the Constitution, section 350 of the Tariff Act of 1930, as amended, or the Act.

AMENDMENT NOTE: In § 1.1 the section heading was amended, the text was designated paragraph (a), and paragraph (b) was added, E.O. 11106, 28 F.R. 3911, Apr. 20, 1963.

§ 1.2 Office of Special Representative.

(a) There is hereby established in the Executive Office of the President an agency which shall be known as the Office of the Special Representative for Trade Negotiations.

(b) There shall be at the head of the said Office the Special Representative for Trade Negotiations provided for in section 241 of the Act (hereinafter referred to as the Special Representative), who shall be directly responsible to the President.

(c) There shall be in the said Office a Deputy Special Representative for Trade Negotiations with the rank of Ambassador, whose principal functions shall be to conduct negotiations under title II of the Act, and who shall perform such additional duties as the Special Representative may direct.

AMENDMENT NOTE: § 1.2 was revised and deemed to have become effective Jan. 15, 1963, E.O. 11106, 28 F.R. 3911, Apr. 20, 1963.

§ 1.3 Functions of Special Representative.

(a) The Special Representative shall have the functions conferred upon him by the Act, the functions delegated or otherwise assigned to him by the provisions of this part, and such other functions as the President may from time to time direct.

(b) The Special Representative shall advise and assist the President in the administration of, and facilitate the carrying out of, the trade agreements program. In addition, the Special Representative shall advise the President with respect to nontariff barriers to international trade, international commodity agreements, and other matters which are related to the trade agreements program.

(c) As he may deem to be necessary for the proper administration and execution of the trade agreements program and of this part, the Special Representative (1) shall draw upon the resources of Federal agencies, and of bodies established by or under the provisions of this part, in connection with the performance of his functions, and (2) except as may be otherwise provided by this part or by law, may assign to the head of any such agency or body the performance of duties incidental to the administration of the trade agreements program.

(d) In connection with the performance of his functions the Special Representative shall, as appropriate and practicable, consult with Federal agencies.

(e) The Special Representative shall from time to time furnish the President lists of articles proposed for publication and transmittal to the Tariff Commission by the President under the provisions of section 221(a) of the Act.

(f) The functions conferred upon the President by section 222 of the Act are hereby delegated to the Special Representative.

(g) The functions conferred upon the President by the first sentence of section 223 of the Act are hereby delegated to the Special Representative. The Special Representative is hereby designated to perform the functions prescribed by the second sentence of that section.

(h) After the President has entered into a trade agreement which provides for any new tariff concession, the Special Representative shall submit to the President, for transmission by him to each House of Congress, copies of such trade agreement, together with a draft of the statement relating thereto provided for in section 226 of the Act. In addition, the Special Representative shall transmit to each House of Congress copies of agreements supplementary to trade agreements which do not provide for any new tariff concession, and of such other documents relating to the trade agreements program as he considers appropriate, together with a brief statement describing each such supplementary agreement or other document.

(i) The Special Representative shall make arrangements under which the committee established by § 1.4 of this part shall provide for public hearings in pursuance of the second sentence of section 252(d) of the Act. The functions conferred upon the President by the first sentence of that section are hereby delegated to the Special Representative.

(j) Advice furnished by the Secretaries of Commerce and Labor under section 351(c) of the Act shall be transmitted by the respective secretaries to the President through the Special Representative.

(k) Subject to available financing, the Special Representative may employ such personnel as may be necessary to assist him in the performance of his functions.

(l) The Special Representative shall prepare or have prepared for consideration by the President, in a form suitable for inclusion in title 49 of the Code of Federal Regulations, any proclamation which relates wholly or primarily to the trade agreements program. Any such proclamation shall be subject to the provisions of Executive Order No. 11030 of June 19, 1962 (27 F.R. 5847), except that such proclamation need not be submitted for approval to the Director of the Bureau of the Budget as provided in sections 2 (a) and (b) of that order but may be transmitted directly to the Attorney General for his consideration as to both form and legality.

AMENDMENT NOTE: In § 1.3, paragraph (b) was revised, paragraph (c) was amended, paragraph (i) was deleted, paragraph (h) was redesignated paragraph (i), and new paragraphs (h) and (l) were added, E.O. 11106, 28 F.R. 3911, Apr. 20, 1963.

§ 1.4 Trade Expansion Act Advisory Committee.

(a) There is hereby established the Trade Expansion Act Advisory Committee (hereinafter referred to as the Committee). The Committee shall be composed of the Special Representative, who shall be its chairman, and the following other members: the Secretary of State, the Secretary of the Treasury, the Secretary of Defense, the Secretary of the Interior, the Secretary of Agriculture, the Secretary of Commerce, and the Secretary of Labor.

(b) Each Secretary referred to in paragraph (a) of this section may designate an official from his department, who is in status not below that of an Assistant Secretary of an executive or military department, to serve as a member of the Committee in lieu of the designating Secretary when the latter is unable to attend any meeting of the Committee. In corresponding circumstances the Special Representative may designate the Deputy Special Representative for Trade Negotiations, for a corresponding purpose. Except for his accountability to his designating authority, any person while so serving shall have in all respects the same status, as a member of the Committee, as do other members of the Committee.

(c) The Special Representative may from time to time designate any member of the Committee (including any person serving as a member of the Committee under the provisions of paragraph (b) of this section) to act as chairman of the Committee when the Special Representative is unable to attend any meeting of the Committee.

(d) The Committee shall have the functions conferred by the Act upon the interagency organization referred to in section 242 of the Act and shall also perform such other functions as the President may from time to time direct.

(e) The recommendations made by the Committee under section 242(b)(1) of the Act, as approved or modified by the President, shall guide the administration of the trade agreements program.

(f) Before making recommendations to the President under section 242(b)(2) of the Act, the Committee shall, through the Special Representative, request the advice of the Adjustment Assistance Advisory Board, created by the provisions of section 361 of the Trade Expansion Act of 1962, concerning the feasibility of adjustment assistance to workers and firms.

(g) The functions conferred upon the President by the second sentence of section 242(c) of the Act, to the extent that they are in respect of procedures, are hereby delegated to the Committee.

AMENDMENT NOTE: In § 1.4, former paragraph (f) was designated paragraph (g) and a new paragraph (f) was added, E.O. 11106, 28 F.R. 3911, Apr. 20, 1963.

§ 1.5 Tariff Commission.

(a) The United States Tariff Commission is requested to determine the ad valorem equivalent, and, for this purpose, the authority conferred upon the President by the provisions of section 256(7) of the Act is hereby delegated to the Commission.

(b) Reports required to be made, and transcripts of hearings and briefs required to be furnished, by the Tariff Commission under the provisions of section 301(f)(1) of the Act (1) shall, in respect of investigations made by it under section 301(c)(1) of the Act, be transmitted by the Commission to the President through the Secretary of Commerce, and (2) shall, in respect of investigations made by it under section 301(c)(2) of the Act, be transmitted to the President through the Secretary of Labor.

(c) All other reports, findings, advice, hearing transcripts, briefs, and information which, under the terms of the Act, the Tariff Commission is required to furnish, report, or otherwise deliver to the President shall be transmitted to him through the Special Representative.

(d) Advice of the Tariff Commission under section 221(b) of the Act shall not be released or disclosed in any manner or to any extent not specifically authorized by the President or by the Special Representative.

§ 1.6 Secretary of the Treasury.

There is herby delegated to the Secretary of the Treasury the authority to issue regulations, conferred upon the President by the provisions of section 352(b) of the Act.

§ 1.7 Secretary of Commerce.

The authority to certify, conferred upon the President by the provisions of Section 302(c) of the Act, to the extent that such authority is in respect of firms, is hereby delegated to the Secretary of Commerce.

§ 1.8 Secretary of Labor.

There are hereby delegated to the Secretary of Labor the authority to certify, conferred upon the President by the provisions of section 302(c) of the Act, to the extent that such authority is in respect of groups of workers, and the authority conferred upon the President by the provisions of section 302(e) of the Act.

§ 1.9 Committees and task forces.

To perform assigned duties in connection with functions under the Act or this part and as may be permitted by law, the Special Representative may from time to time cause to be constituted appropriate committees or task forces made up in whole or in part of representatives or employees of interested agencies, of representatives of the committee established by the provisions of § 1.4 of this part, or of other persons. Assignments of personnel from agencies, in connection with the foregoing, and assignments of duties to them, shall be made with the consent of the respective heads of agencies concerned.

AMENDMENT NOTE: § 1.9 was amended, E.O. 11106, 28 F.R. 3911, Apr. 20, 1963.

§ 1.10 Threat of impairment of national security.

Executive Order No. 11051 of September 27, 1962, is hereby amended by striking from section 404(a) thereof the text "Section 2 of the Act of July 1, 1954 (68 Stat. 360; 19 U.S.C. 1352a)" and inserting in lieu of the stricken text the following: "Section 232 of the Trade Expansion Act of 1962".

§ 1.11 Redelegation.

Delegations of authority made by this part to the Special Representative, the Secretary of Commerce, and the Secretary of Labor, and other assignments of authority made by this part to the Special Representative, shall be deemed to include the power of successive redelegation.

AMENDMENT NOTE: Former § 1.11 was designated § 1.12 and a new § 1.11 was added, E.O. 11106, 28 F.R. 3911, Apr. 20, 1963.

§ 1.12 References.

Except as may for any reason be inappropriate, references in this part to any other Executive order or to the Act or to the Trade Expansion Act of 1962 or to any other statute, and references in this part or in any other Executive order to this part, shall be deemed to include references thereto, respectively, as amended from time to time.

AMENDMENT NOTE: Former §§ 1.11 and 1.12 were designated §§ 1.12 and 1.13 respectively, E.O. 11106, 28 F.R. 3911, Apr. 20, 1963.

§ 1.13 Prior bodies and orders.

(a) The pending business, and the records and property, of the Trade Policy Committee, Trade Agreements Committee, and Committee for Reciprocity Information (now existing under orders referred to in paragraph (b) of this section) shall be completed or transferred as the Special Representative, consonant with law and with the provisions of this part, shall direct; and the said committees are abolished effective as of the thirtieth day following the date of E.O. 11075 of January 15, 1963.

(b) Subject to the foregoing provisions of this section, the following are hereby superseded and revoked:

(1) Executive Order No. 10082 of October 5, 1949.

(2) Executive Order No. 10170 of October 12, 1950.

(3) Executive Order No. 10401 of October 14, 1952.

(4) Executive Order No. 10741 of November 25, 1957.

AMENDMENT NOTE: Former § 1.12 was redesignated § 1.13, E.O. 11106, 28 F.R. 3911, Apr. 20, 1963.

Chapter II—Office of the Special Representative for Trade Negotiations

[Directive No. 1]

ADDITION OF CHAPTER

In Title 48 of the Code of Federal Regulations a new Chapter II is added to read as follows:

PART 201—CREATION, ORGANIZATION, AND FUNCTIONS

Sec.
201.0 Scope and purpose.
201.1 Creation and location.
201.2 Organization.
201.3 Functions.

AUTHORITY: §§ 201.0 to 201.3 issued under sec. 401, 76 Stat. 902; 19 U.S.C. 1802. E.O. 11075, as amended (Part 1 of this title).

§ 201.0 Scope and purpose.

This chapter sets out the basic terms of reference of the Office of the Special Representative for Trade Negotiations and the procedures whereby it carries out its general responsibilities under the trade agreements program. One of the primary purposes of this chapter is to inform the public of the unit in the Office known as the Trade Information Committee, the function of which is to afford an opportunity to interested parties to present oral and written statements concerning the trade agreements program and related matters.

§ 201.1 Creation and location.

(a) The Office of the Special Representative for Trade Negotiations is established as an agency in the Executive Office of the President by § 1.2 of this title.

(b) The Office of the Special Representative for Trade Negotiations is located in the Executive Office Building, 17th Street and Pennsylvania Avenue NW., Washington 25, D.C.

§ 201.2 Organization.

(a) The Office of the Special Representative for Trade Negotiations is headed by the Special Representative for Trade Negotiations provided for in section 241 of the Trade Expansion Act of 1962 (76 Stat. 878; 19 U.S.C. 1871), who is directly responsible to the President. In addition, the Office consists of the Deputy Special Representative for Trade Negotiations provided for in § 1.2 of this title, and a professional staff.

(b) Established by, and under the direction and control of, the Special Representative for Trade Negotiations are three interagency committees, the Trade Executive Committee, the Trade Staff Committee, and the Trade Information Committee, provided for in part 202 of this chapter.

§ 201.3 Functions.

(a) The Special Representative for Trade Negotiations (1) advises and assists the President in the administration of, and facilitates the carrying out of, the trade agreements program, and (2) advises the President with respect to nontariff barriers to international trade, international commodity agreements, and other matters which are related to the trade agreements program, as provided in § 1.3 of this title.

(b) The Special Representative for Trade Negotiations is Chairman of the Trade Expansion Act Advisory Committee established by § 1.4 of this title.

PART 202—ESTABLISHMENT AND OPERATION OF COMMITTEES

Section
202.1 Trade Executive Committee.
202.2 Trade Staff Committee.
202.3 Trade Information Committee.
202.4 Participation by other agencies.
202.5 Transfers.

AUTHORITY: §§ 202.1 to 202.5 issued under sec. 401, 76 Stat. 902; 19 U.S.C. 1802. §§ 202.1 to 202.4 also issued under secs. 9 and 11 of E.O. 11075, as amended (§§ 1.9 and 1.11 of this title). Additional authority is also cited in parentheses following provisions affected.

§ 202.1 Trade Executive Committee.

(a) There is hereby established the Trade Executive Committee, which shall consist of the Deputy Special Representative for Trade Negotiations, as chairman, and of officials, who are each in status not below that of an assistant Secretary, designated from their respective agencies by the Secretaries of Agriculture, Commerce, Defense, Interior, Labor, State, and Treasury. The Special Representative for Trade Negotiations and each Secretary may designate from his respective agency an official, who is in status not below that of a Deputy Assistant Secretary, to serve as a member of the Trade Executive Committee in lieu of the regular member when the latter is unable to attend any meeting of the Committee.

(b) The Trade Executive Committee shall—

(1) Plan, direct, and coordinate interagency activities concerning the trade agreements program and related matters;

(2) Recommend policies and actions, and transmit appropriate materials, to the Special Representative for Trade Negotiations concerning the trade agreements program and related matters, or, when appropriate, approve such policies and actions;

(3) Supervise and direct the activities of the Trade Staff Committee and the Trade Information Committee, established by §§ 202.2 and 202.3, respectively; and

(4) Perform such other functions as the Special Representative for Trade Negotiations may from time to time determine.

§ 202.2 Trade Staff Committee.

(a) There is hereby established the Trade Staff Committee, which shall consist of a chairman designated from his Office by the Special Representative for Trade Negotiations and of officials designated from their respective agencies by the Secretaries of Agriculture, Commerce, Defense, Interior, Labor, State, and Treasury, and by the Chairman of the Tariff Commission. The Special Representative for Trade Negotiations, each Secretary, and the Chairman of the Tariff Commission may designate from his respective agency an official to serve as a member of the Trade Staff Committee in lieu of the regular member when the latter is unable to attend any meeting of the Committee. The official from the Tariff Commission will be a nonvoting member of the Trade Staff Committee, and will not participate in the discussion of any policy matter or in the consideration of any report submitted by the Tariff Commission.

(b) The Trade Staff Committee shall—

(1) Obtain information and advice from agencies and other sources concerning any proposed trade agreement, and furnish summaries of such information and advice, together with recommendations of action with respect thereto, to the Trade Executive Committee;

(Sec. 222, 76 Stat. 875; 19 U.S.C. 1842)

(2) Review summaries of information concerning any proposed trade agreement furnished by the Trade Information Committee, and transmit such summaries, together with recommendations of action with respect thereto, to the Trade Executive Committee;

(3) Review summaries of information concerning foreign import restrictions furnished by the Trade Information Committee, and transmit recommendations of action with respect thereto, through the Trade Executive Committee to the Trade Expansion Act Advisory Committee established by § 1.4 of this title;

(4) Review reports concerning tariff adjustment submitted by the Tariff Commission, and transmit such reports, together with recommendations of action with respect thereto, through the Trade Executive Committee to the Trade Expansion Act Advisory Committee;

(5) Review all materials required by § 1.5 of this title to be furnished by the Tariff Commission to the President through the Special Representative for Trade Negotiations, and transmit such materials, together with recommendations of action with respect thereto, to the Trade Executive Committee, except as provided in subparagraph (4) of this paragraph;

(6) Recommend policies and actions to the Trade Executive Committee concerning the trade agreements program and related matters, or, when appropriate, approve such policies and actions;

(7) Keep regularly informed of the operation and effect of the trade agreements program and related matters; and

(8) Perform such other functions as the Trade Executive Committee may from time to time determine.

§ 202.3 Trade Information Committee.

(a) There is hereby established the Trade Information Committee which shall consist of a chairman designated from his Office by the Special Representative for Trade Negotiations, and of officials designated from their respective agencies by the Secretaries of Agriculture, Commerce, Defense, Interior, Labor, State, and Treasury. The Special Representative for Trade Negotiations and each Secretary may designate from his respective agency an official to serve as a member of the Trade Information Committee in lieu of the regular member when the latter is unable to attend any meeting of the Committee.

(b) The Trade Information Committee shall—

(1) Provide an opportunity, by the holding of public hearings and by such other means as it deems appropriate, for any interested party to present an oral or written statement concerning any proposed trade agreement, and furnish summaries of such hearings and other pertinent information so received to the Trade Staff Committee;

(Sec. 223, 76 Stat. 875; 19 U.S.C. 1843)

(2) Provide an opportunity, by the holding of public hearings, upon request by any interested party, and by such other means as it deems appropriate, for any interested party to present an oral or written statement concerning foreign

import restrictions, and furnish summaries of such hearings and other pertinent information so received to the Trade Staff Committee and the Trade Expansion Act Advisory Committee;

(Sec. 252(d), 76 Stat. 880; 19 U.S.C. 1882(d))

(3) Provide an opportunity, by such means as it deems appropriate, for any interested party to present an oral or written statement concerning any other aspect of the trade agreements program and related matters, and furnish summaries of pertinent information so received to the Trade Staff Committee;

(4) Issue regulations governing the conduct of its public hearings and the performance of such of its other functions as it deems necessary; and

(Secs. 223, 252(d), 76 Stat. 875, 880; 19 U.S.C. 1843, 1882(d))

(5) Perform such other functions as the Trade Executive Committee may from time to time determine.

§ 202.4 Participation by other agencies.

Each committee established by this part may invite the participation in its activities of any other agency not regularly represented thereon, when matters of interest to such agency are under consideration.

§ 202.5 Transfers.

The business pending as of the date of the abolition, and the records and property, of the Trade Policy Committee, the Interdepartmental Committee on Trade Agreements, and the Committee for Reciprocity Information are hereby transferred to the Trade Expansion Act Advisory Committee, the Trade Staff Committee, and the Trade Information Committee, respectively.

(§ 1.13 of this title)

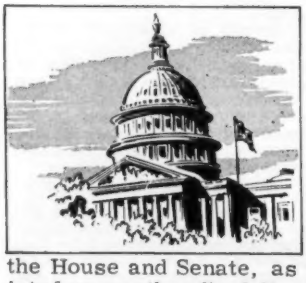
Effective date. This chapter shall become effective on the date of its publication in the FEDERAL REGISTER.

Signed at Washington, D.C., on April 20, 1963.

CHRISTIAN A. HERTER,
Special Representative for Trade Negotiations.

Eighty-Eighth Congress

(First Session)



Public bills and resolutions which may directly or indirectly affect the fisheries and allied industries are reported upon. Introduction, referral to committees, pertinent legislative actions by the House and Senate, as well as signature into law or other final disposition are covered.

ANTIDUMPING ACT AMENDMENT: H. R. 5869 (Lloyd), Apr. 25, 1963; H. R. 5960 (Chenoweth), Apr. 30, 1963; H. R. 6033 (Secrest), May 2, 1963; H. R. 6087 (Morris), May 6, 1963; H. R. 6116 (McMillan), May 7, 1963; H. R. 6214 (Burton), May 9, 1963; H. R. 6293 (Knox), and H. R. 6303 (Utt) May 14, 1963; H. R. 6322 (Alger), May 15 1963; H. R. 6409 (Collier), May 16, 1963; and H. R. 6420 (Betts), May 20, 1963, all introduced in the House, to amend the Antidumping Act, 1921; referred to the Committee on Ways and Means.

S. 1497 (Javits) introduced in Senate May 9, 1963, to amend the Antidumping Act, 1921, so as to provide protection thereunder for industries of friendly nations with which the United States has entered into trade agreements and to provide additional bases for determining the foreign market value of merchandise imported from Communist countries; referred to the Committee on Finance.

BERING SEA HALIBUT FISHERY: The East Bering Sea Halibut (Joint hearings before the Merchant Marine and Fisheries Subcommittee of the Committee on Commerce, United States Senate and the Committee on Merchant Marine and Fisheries, House of Representatives, 88th Congress, 1st Session), 334 pp., printed. Contains hearings held Feb. 14 and 15, 1963, at Seattle, Washington, and Feb. 17 and 18, 1963, in Juneau, Alaska. The hearings were concerned with the recent recommendation of the International North Pacific Fisheries Commission to open the eastern Bering Sea to halibut fishing by the Japanese. Contains the statements and communications from industry personnel, Government agencies and interested parties.

CLAM PLANTERS DISASTER LOANS: H. R. 6107 (Bonner) introduced in House May 7, 1963, to extend to clam planters the benefits of the provisions of the present law which provide for production disaster loans for farmers, stockmen, and oyster planters; referred to the Committee on Agriculture.

COLLISION AT SEA, REGULATIONS FOR PREVENTION: H. R. 6012 (Bonner) introduced in House May 2, 1963, and S. 1459 (Magnuson) introduced in Senate May 8, 1963, to authorize the President to proclaim regulations for preventing collisions at sea; referred to the Senate Committee on Commerce and the House Committee on Merchant Marine and Fisheries. Would authorize the President on behalf of the United States to proclaim the international regulations for preventing collisions at sea, 1960, on or after a date fixed by the Intergovernmental Maritime Consultative Organization for application of such regulation by governments which have agreed to accept them. Such regulations shall thereafter have effect as if enacted by statute, and be followed by all public and private vessels of the United States and by all aircraft of U. S. registry to the extent therein made applicable. However, they shall not apply to waters of the United States governed by the inland rules, the Great Lakes rules, or the western rivers rules, nor shall they apply to aircraft on any territorial water of the United States. Would repeal the existing international rules for preventing collisions at sea, 1948. Regulations were formulated at the Fourth International Conference on Safety of Life at Sea, 1960 (annex E to the final act of the International Conference on Safety of Life at Sea.)

Parts of the rules of the International Regulations for preventing collisions at sea were rewritten. Those which apply directly to fishing vessels are:

Rule 9. This rule has been completely rewritten to require vessels engaged in trawling to show a distinctive signal consisting of a green light over white visible all round the horizon and vessels engaged in other types of fishing to show a red light over white and to require the showing of a stern light. A new provision concerning lights on vessels with outlying gear extending more than 500 feet has been added. A new provision has been added permitting the use of the searchlight beam to warn approaching vessels as well as a flare-up light or working lights as now provided and a new day signal has been provided for vessels engaged in fishing.

Rule 13. The discretionary powers authorized under the existing rule in respect to rules made by governments have been amplified to include "fishing vessels engaged in fishing as a fleet." The provision for "recognition signals adopted by shipowners, which have been authorized by the respective governments" has been deleted.

COMMERCIAL FISHERIES FUND: H. R. 5798 (O'Neill) introduced in House Apr. 23, 1963, to promote State commercial fishery research and development projects, and for other purposes; referred to the Committee on Merchant Marine and Fisheries.

The Subcommittee on Merchant Marine and Fisheries of the Senate Committee on Apr. 25, 1963, recessed the hearings, subject to call, on S. 627, to promote State commercial fishery research and development projects, and for other purposes.

On May 14, 1963, Senator Bartlett (Alaska) presented a statement to the Senate (Congressional Record, May 14, 1963, pages 7990-7992) concerning the problem of Soviet fishing activities off the coasts of the United States from the most northern waters of Alaska, the east coast from Maine to Florida, and to the Gulf of Mexico. He also stated that the Soviet fishing fleet has vessels far superior to those of the U. S. fishing fleet and that the U. S. has no fishing vessels of the size of the smallest Russian vessels. He further states, that the U. S. has dropped down to fifth position in world fisheries due to the lack of technical and financial assistance to the fishermen and unless aid to the fishing industry is given we may drop down the list even further. The presence of Soviet fishing vessels off the coasts of the United States not only cause a threat to the fishing industry but to the national security.

Senator Gruening (Alaska) concurred with Senator Bartlett and further stated support for the Senator's bill, S. 627, to promote State commercial fishery research and development projects, and for other purposes.

COMMODITY PACKAGING AND LABELING: The Antitrust and Monopoly Subcommittee of the Senate Committee on the Judiciary on Apr. 24, 1963, resumed hearings on S. 387, to amend the Clayton Act to prohibit restraints of trade carried into effect through the use of unfair and deceptive methods of packaging or labeling certain consumer commodities distributed in commerce, and for other purposes. Bill directs the Food and Drug Administration--for foods, drugs, and cosmetics--and the Federal Trade Commission--for other consumer commodities--to promulgate regulations that will require packages accurately and clearly to give essential product information and fairly represent the contents.

The Antitrust and Monopoly Subcommittes of the Senate Committee on the Judiciary on April 26, 1963, concluded its series of hearings on S. 387.

H. R. 6220 (Rosenthal) introduced in House May 9, 1963, to amend the Clayton Act to prohibit restraints of trade carried into effect through the use of unfair and deceptive methods of packaging or labeling certain consumer commodities distributed in commerce, and for other purposes; referred to Committee on the Judiciary.

EXEMPT TRANSPORTATION OF AGRICULTURAL AND FISHERY PRODUCTS: The House on May 6, 1963, and the Senate on May 8, 1963, were presented with a concurrent resolution from the South Carolina Legislature urging the Congress of the United States to act favorably upon legislation now before the body, exempting certain carriers from minimum rate regulation in the transportation of bulk commodities, agricultural and fishery products, and passengers. Congress was urged to give favorable consideration to H. R. 4700 and S. 1061. Referred to the Senate Committee on Commerce and the House Committee on Interstate and Foreign Commerce.

The Surface Transportation Subcommittee of the Senate Committee on Commerce May 15, 1963, recessed, subject to call, hearings held on S. 1061, to exempt certain carriers from minimum rate regulation in the transportation of bulk commodities, agricultural and fishery products and passengers, and for other purposes.

The Surface Transportation Subcommittee held an executive session, May 16, 1963, and announced that it had agreed to hold further hearings on S. 1061.

FISH PROTEIN CONCENTRATE: On May 8, 1963, Representative Keith (Mass.), and Senator Saltonstall (Mass.) were given permission by their respective houses to have printed in the Congressional Record, an article from the Wall Street Journal, which is an excellent explanation of the problem involving the production of fish protein concentrate in the United States. The articles appear on pages 7628-7629 and A-2862-A2863 of the May 8, 1963, issue of the Congressional Record.

FOOD-FOR-PEACE, AND FISH: The Senate on April 26, 1963, was presented with a joint resolution of the Legislature of the State of Maine memorializing Congress to consider promptly and favorably S. 702 and H. R. 3965, relating to domestically-produced fishery products, which would authorize the procurement and distribution of domestically-produced fishery products under the food-for-peace program. Resolution further states that the Federal Government has embarked on a program for food for peace to facilitate the purchases of domestic food surplus for sale to needy foreign nations; the use of healthful, high in protein fishery products would contribute to the success of the program; the development and progress of the fishery resources of the United States requires expanded domestic and foreign markets; the offshore fishery resources of the United States are being harvested by foreign powers unconcerned with proper conservation measures and the domestic market flooded with low-cost produced imports; and the fishing industry is one of our Nation's greatest present potential sources of foodstuffs.

The House on Apr. 29, 1963, was presented with a memorial of the Legislature of the State of Maine recommending that Congress give prompt and favorable consideration to S. 702 and H. R. 3965, bills which would make domestically-produced fishery products eligible for procurement and distribution under the food-for-peace program to assist that program and the development of the domestic fishery resources; referred to the Committee on Agriculture.

Senator Bartlett of Alaska (Congressional Record, Apr. 30, 1963, pp. 6921-6924) presented the Senate with a statement on the need for fish products in the food-for-peace program. In his statement Senator Bartlett pointed out that a substantial improvement is required to save the fishing industry, the fishermen, and the fishery resources from extinction. An unstable market and enormous foreign imports made possible by heavily subsidized or state-owned foreign fleets face the United States fishing industry, along with widely fluctuating prices, competition from modern, well-equipped, technically advanced vessels, and exploitation of our offshore fishery resources by foreign vessels. The 88th Congress has introduced a number of legislative proposals that would help to turn the tide by promoting fishery research and development, by encouraging our fishing fleets to modernize and by expanding foreign markets for domestic fishery products.

He stated his support for one of the legislative proposals, S. 702, relating to domestically-produced fishery products, ". . .the bill would permit domestically-produced fishery products to be used in the food-for-peace program when the Director of the program determines that the utilization of a specific fishery product would contribute to the food-for-peace program and the Secretary of the Interior determines that the inclusion would contribute to the development of the fishery resources or assist a segment of the fishing industry." The legislation would assist the fishing industry in three ways which are: (1) friendly nations would be permitted to buy American fishery products and pay for them in their own local currency, the supplier would receive the dollar equivalent from the Commodity Credit Corporation; (2) long-term loans could be made available to importers in friendly countries interested in buying American fish products, and the CCC would be permitted to hold notes from the foreign countries and make payment for exports in dollars to American exporters; and (3) would permit domestic fishery products to be included in the food-for-peace program that is administered through some 17 American voluntary relief agencies, to the undernourished in friendly foreign nations.

H. R. 6361 (King) introduced in House May 15, 1963, relating to domestically-produced fishery products; referred to the Committee on Agriculture.

GREAT LAKES FISHERY: Senator Hart of Michigan (Congressional Record, Apr. 24, 1963, pp. 6658-6663) presented to the Senate on Apr. 24, 1963, a program for the Great Lakes Fisheries. In his statement, Sen. Hart discussed the history of the fisheries of the Great Lakes, their growth, economic effect in that area, and their many problems. He further stated that, "Throughout the Great Lakes, fishermen need sound advice and practical demonstrations of the proper handling and refrigeration of the catch. Too frequently, poor quality is assured even before the fish are landed. Quality control must be stressed from the time of catch to the consumer's table. Broadening of voluntary Federal inspection of processing and packing plants should be encouraged. The development of new, more efficient, cheaper methods of taking fish are badly needed. When new methods and gears are developed, the fishermen must have sound advice in their use and on necessary modifications of vessels. Many will need assistance in obtaining capital for a change in method of fishing. Exploratory fishing by Federal vessels, especially with new fishing gears, can provide fishermen with needed information on the grounds and seasonal availability. Elementary but thorough cost studies are needed urgently for various fisheries and species from the time of catching to final purchase by the consumer." Sen. Hart also presented several charts on the production of fish in the Great Lakes which are printed in the Record.

HEALTH, EDUCATION, AND WELFARE APPROPRIATIONS FY 1964: H. R. 5888 (Fogarty) introduced in House Apr. 25, 1963, making appropriations for the Departments of Labor, and Health, Education, and Welfare, and related agencies, for the fiscal year ending June 30, 1964, and for other purposes. The bill was reported favorably (H. Rept. 246), to the House by the Committee on Appropriations on the same day.

H. Rept. 246, Department of Labor, and Health, Education, and Welfare, and Related Agencies Appropriation Bill, 1964 (Apr. 25, 1963, a report from the Committee on Appropriations, House of Representatives, 88th Congress, 1st Session), to accompany H. R. 5888) 64 pp., printed. The Committee after due consideration, recommended passage of the bill.

The House on Apr. 30, 1963, passed by voice vote H. R. 5888. Included are funds for Food and Drug Administration, milk, food, interstate and community sanitation and water pollution control. The milk, food, interstate and community sanitation program assures that only safe water, milk, shellfish and other marine food, and food supplies are served to public, will provide for research and technological assistance programs on shellfish and other marine foods at the two new shellfish sanitation research centers which are to be constructed. The water pollution program provides for regional laboratories located in strategic points throughout the country to promote research and training activities and provide a base of action of State, interstate, and Federal agencies cooperating to eliminate water pollution. Received in the Senate on May 1, 1963; referred to the Committee on Appropriations.

IMPORT COMMODITY LABELING: Marking of Imported Articles (Hearing before the Committee on Finance, United States Senate, 88th Congress, 1st Session). Contains hearings held Mar. 21, 1963, on H. R. 2513, to amend the Tariff Act of 1930 to require certain new packages of imported articles to be marked to indicate the country of origin, and for other purposes; testimony of witnesses from Government agencies and industry; and written communications.

H. R. 6217 (Clausen) introduced in the House May 9, 1963, to amend the Tariff Act of 1930 to require certain new packages of imported articles to be marked to indicate the country of origin, and for other purposes; referred to the Committee on Ways and Means.

INTERIOR DEPARTMENT APPROPRIATIONS FY 1964: Department of the Interior and Related Agencies Appropriations for 1964 (Hearings before a Subcommittee of the Committee on Appropriations, House of Rep-

resentatives, 88th Congress, 1st Session), 1,830 pp., printed. Included in the testimony is funds for the Fish and Wildlife Service: the Office of the Commissioner, and its two bureaus, Commercial Fisheries and Sport Fisheries and Wildlife.

The Subcommittee of the Senate Committee on Appropriations, in executive session, on May 15, 1963, marked up and approved for full committee consideration H. R. 5279, making appropriations for the Department of the Interior and related agencies for the fiscal year ending June 30, 1964, and for other purposes. The full Committee met in executive session to consider this bill on May 22, 1963.

INTERNATIONAL FISHING LIMITS: Senator Bartlett (Alaska) on May 15, 1963, presented a statement to the Senate (Congressional Record, May 15, 1963, pages 8163-8164) on the need for the extension of international fishing limits, to protect the fishing grounds for countries all over the world. He also asked to have included in the Record copies of letters between the Secretary of State and himself concerning this subject.

Senator Bartlett was granted permission to have printed in the Appendix of the Congressional Record, May 15, 1963, pages A3035-A3036, the speech given by Mr. Edward W. Allen at the Northwest Pacific Regional Conference on International Law, titled, "Turmoil in the North Pacific." Mr. Allen's speech dealt with subjects including the International Law of the Sea, the problems confronting the halibut fishery, and the need for conservation.

INTERNATIONAL NORTH PACIFIC FISHERIES COMMISSION: Senator Magnuson, on May 13, 1963 (Congressional Record, May 13, 1963, pages 7808-7809), presented to the Senate a statement concerning the designation by President Kennedy of Benjamin Smith (former Senator from Massachusetts) as chairman of the United States delegation at the Conference of the International North Pacific Fisheries Commission to be held during the month of June in Washington, D. C. Senator Magnuson further states that the pattern that could be set up at this meeting, could in turn, affect high sea fisheries in other parts of the world as the need mounts for more and more conservation of food fish.

MEDICAL CARE FOR VESSEL PERSONNEL: On Apr. 25, 1963, the Subcommittee on Merchant Marine and Fisheries of the Senate Committee on Commerce, recessed the hearings, subject to call, on S. 978, to provide medical care for certain persons engaged onboard a vessel in the care, preservation, or navigation of such vessel.

The Senate Committee on Commerce May 14, 1963, in executive session, ordered favorably reported S. 978.

METRIC SYSTEM STUDY: H. Con. Res. 145 (Fulton) introduced in House Apr. 29, 1963, expressing the sense of the Congress with respect to the adoption in the United States of the metric system of weights and measures; referred to the Committee on Science and Astronautics.

OUTDOOR RECREATION BUREAU: On Apr. 29, 1963, the House by voice passed H. R. 1762, to promote the coordination and development of the effective Federal and State programs relating to outdoor recreation. The passage of H. R. 1762, was subsequently vacated and S. 20, a similar bill, was passed in lieu after having been amended to contain the House-passed text.

The Senate on May 1, 1963, disagreed to the House amendments to S. 20, to promote the coordination and development of the effective Federal and State programs relating to outdoor recreation, and for other purposes, and asked for a conference with the House. Appointed as conferees were Senators Jackson, Anderson, Bible, Kuchel, and Allott.

The House on May 13, 1963, insisted on its amendments to S. 20; agreed to a conference requested by the Senate; and appointed as conferees Representatives Aspinall, O'Brien (New York), Morris, Saylor and Chenoweth.

On May 15, 1963, the House received from the Committee of Conference its report (H. Rept. 303) on S. 20. The House and the Senate on May 16, 1963, adopted the conference report (H. Rept. 303) on S. 20, to promote the coordination and development of effective Federal and State programs relating to outdoor recreation and for other purposes; thus clearing the bill for the President's signature.

PACIFIC ISLANDS TRUST TERRITORY DEVELOPMENT: On Apr. 30, 1963, the Subcommittee on Territorial and Insular Affairs of the House Committee on Interior and Insular Affairs held a hearing in executive session on H. R. 3198, to promote the economic and social development of the Trust Territory of the Pacific Islands, and for other purposes. Hearings adjourned subject to call.

PRICE-QUALITY STABILIZATION: On Apr. 26, 1963, the Subcommittee on Commerce and Finance of the House Committee on Interstate and Foreign Commerce, adjourned, subject to call, hearings on H. R. 3669 and similar bills, to amend the Federal Trade Commission Act, to promote quality and price stabilization, to define and restrain certain unfair methods of distribution, and to confirm, define, and equalize the rights of producers and resellers in the distribution of goods identified by distinguishing brands, names, or trademarks, and for other purposes.

H. R. 5934 (Wyman) introduced in House Apr. 29, 1963, to amend the Federal Trade Commission Act, to promote quality and price stabilization, to define and restrain certain unfair methods of distribution and to confirm, define, and equalize the rights of producers and resellers in the distribution of goods identified by distinguishing brands, names, or trademarks, and for other purposes; referred to the Committee on Interstate and Foreign Commerce.

The Subcommittee on Commerce and Finance of the House Committee on Interstate and Foreign Commerce resumed hearings May 14 and 15, 1963, on H. R. 3669 and related bills.

On May 15, 1963, the Subcommittee on Commerce and Finance of the House Committee on Interstate and Foreign Commerce concluded hearings on H. R. 3669 and related bills.

SOVIET FISHING ACTIVITY IN CARIBBEAN: Representative Fascell (Florida) on May 16, 1963, presented a statement to the House (Congressional Record, May 16, 1963, pages 8290-8292) on the serious problem of Soviet trawlers in the Caribbean. The Congressman states, ". . . . there have been insistent and conflicting rumors and reports as to the purposes for which these vessels are operated; whether the bases from which they operate are also submarine bases; whether the

trawlers themselves are nothing but coverups for either military purposes, espionage. . . ." He also commended Representative Rogers (Florida) for disclosing to the public that Soviet trawlers have penetrated the 3-mile limit of the United States.

Representative Fascell also stated, "Soviet Russia, recognizing the importance of meeting its protein deficiency, has established an intelligent world fishing plan operated by the state. The dedicated interest of the Soviets in fishing has brought them, in a few short years, to the top four nations in world fishing production. . . . Cuba with its many natural harbors close to established stocks of fish figures heavily in the Soviet master plan."

Representative Rogers (Florida) and Mathias (Maryland) concurred with Congressman Fascell and commended him for bringing this serious problem to the attention of the House.

STERN RAMP TRAWLERS: Hearings were recessed, subject to call, on S. 744, to authorize the Secretary of the Interior to construct two modern stern ramp trawlers to be used for research, and for other purposes; by the Subcommittee on Merchant Marine and Fisheries of the Senate Committee on Commerce on Apr. 25, 1963.

SUPPLEMENTAL APPROPRIATIONS FY 1963: The Senate Committee on Appropriations, in executive session, on Apr. 24, 1963, ordered favorably reported, with amendments, H. R. 5517, making supplemental appropriations for fiscal year 1963. Included are funds for the Bureau of Commercial Fisheries, U. S. Fish and Wildlife Service. Senate received the report (S. Rept. 155) on Apr. 24, 1963.

S. Rept. 155, Supplemental Appropriation Bill, 1963 (Apr. 24, 1963, a report from the Committee on Appropriations, U. S. Senate. 88th Congress, 1st Session, to accompany H. R. 5517), 49 pp., printed. The Committee recommended an appropriation of $658,400, the same amount as the House allowance and $13,600 less than the budget estimate for the Bureau of Commercial Fisheries. Of this amount $258,400 is to be applied to pay increased costs, and $400,000 is for the purposes of developing and perfecting techniques for the production of fish protein concentrate.

The Senate on May 1, 1963, passed with amendments H. R. 5517, making supplemental appropriations for fiscal year 1963. The Senate insisted on its amendments and asked for a conference with the House, and appointed as conferees Senators Pastore, Holland, Hayden, Russell, Ellender, Hill, Young (N. Dakota), Saltonstall, and Mundt.

The House on May 2, 1963, disagreed to the Senate amendments to H. R. 5517, making supplemental appropriations for fiscal year 1963, and agreed to a conference requested by the Senate. Appointed as conferees were Representatives Thomas, Kirwan, Cannon, Bow, and Wilson (Indiana).

The Senate and the House held a joint conference, in executive session, May 6, 1963, on H. R. 5517, making supplemental appropriations for fiscal year 1963, and agreed to file a conference report. The House on May 6, 1963, received the conference report (H. Rept. 275) on H. R. 5517.

H. Rept. 275, Supplemental Appropriations Bill, 1963 (May 6, 1963, report from the Committee of Conference, House of Representatives, 88th Congress, 1st Session, to accompany H. R. 5517), 9 pp., printed. The Committee of Conference having met, agreed and recommended passage to their respective houses.

The House on May 8, 1963, voted to recommit the conference report on H. R. 5517, making supplemental appropriations for fiscal year 1963, with instructions for the House conferees to insist on disagreement to Senate amendment no. 47. This amendment provides funds for World Food Congress and a contribution to the International Peace Corps Secretariat.

On May 9, 1963, a conference was held, in executive session, on H. R. 5517, and the conferees agreed to file a second conference report.

The Committee of Conference on May 13, 1963, reported (H. Rept. No. 290) to the House on H. R. 5517. This is the second conference report to be submitted for approval.

The House on May 14, 1963, adopted the conference report (H. Rept. 290) on H. R. 5517. The Senate on May 15, 1963, adopted the conference report, thus clearing the bill for the President's signature.

On May 17, 1963, the President signed the bill H. R. 5517, making supplemental appropriations for fiscal year 1963 (P. L. 88-25).

TRANSPORTATION ACT OF 1963: The Surface Transportation Subcommittee of the Senate Committee on Commerce May 15, 1963, recessed, subject to call, hearings held on S. 1062, to provide for strengthening and improving the national transportation system and for other purposes.

The Surface Transportation Subcommittee held an executive session, May 16, 1963, and announced that it had agreed to hold further hearings on S. 1062.

VESSEL CONSTRUCTION SUBSIDY AMENDMENT: H. R. 6069 (O'Neill) introduced in House May 6, 1963, to amend the Act of June 12, 1960, for the correction of inequities in the construction of fishing vessels, and for other purposes; referred to the Committee on Merchant Marine and Fisheries.

WATER POLLUTION CONTROL ADMINISTRATION: H. R. 5848 (Giaimo) introduced in the House Apr. 24, 1963, to amend the Federal Pollution Control Act, as amended, to establish the Federal Water Pollution Control Administration, to increase grants for construction of municipal sewage treatment works, to provide financial assistance to municipalities and others for the separation of combined sewers, to authorize the issuance of regulations to aid in preventing, controlling, and abating pollution of interstate or navigable waters, and for other purposes; also introduced H. R. 5911 (Green), Apr. 29, 1963, both referred to the Committee on Public Works.

WATER POLLUTION CONTROL AID TO INDUSTRY: H. R. 5851 (Giaimo) introduced in House Apr. 24, 1963, to promote water and air pollution control and abatement by authorizing the Secretary of Health, Education, and Welfare to provide certain assistance to small business concerns in obtaining necessary treatment works; referred to the Committee on Public Works.

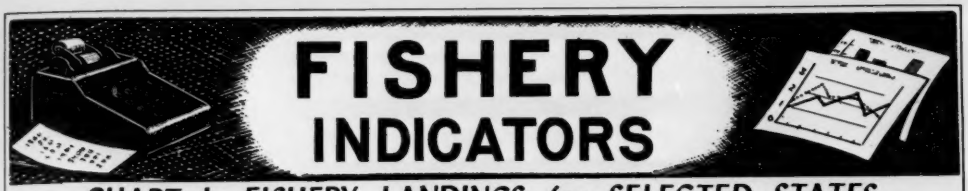
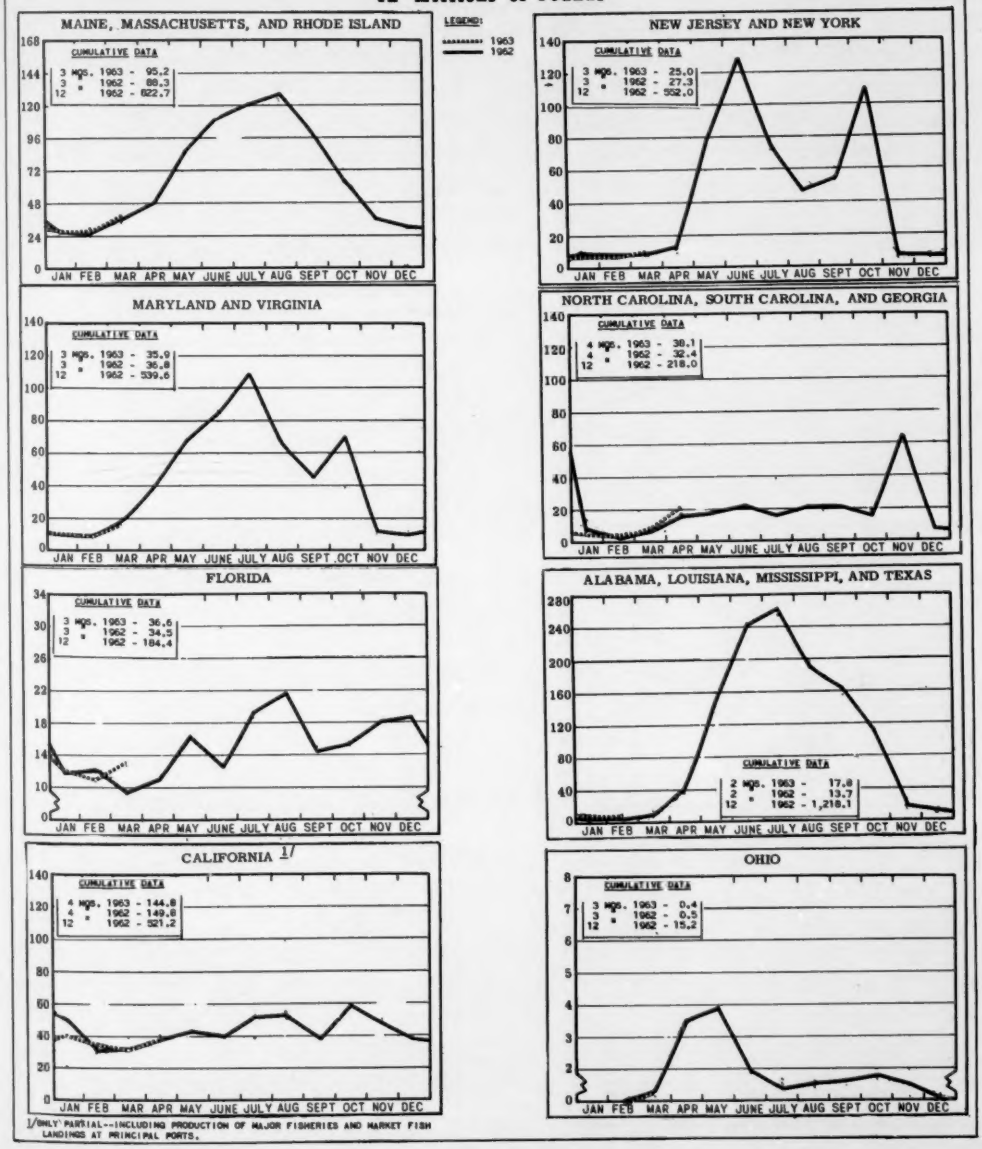


CHART 1 - FISHERY LANDINGS for SELECTED STATES

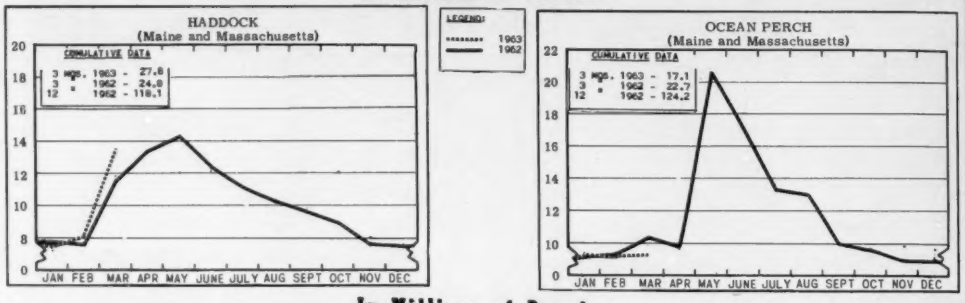
In Millions of Pounds


MAINE, MASSACHUSETTS, AND RHODE ISLAND
CUMULATIVE DATA
3 MOS. 1963 - 95.2
3 " 1962 - 88.3
12 " 1962 - 822.7
LEGEND:
1963
1962
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC
NEW JERSEY AND NEW YORK
CUMULATIVE DATA
3 MOS. 1963 - 25.0
3 " 1962 - 27.3
12 " 1962 - 952.0
MARYLAND AND VIRGINIA
CUMULATIVE DATA
3 MOS. 1963 - 35.9
3 " 1962 - 36.8
12 " 1962 - 539.6
NORTH CAROLINA, SOUTH CAROLINA, AND GEORGIA
CUMULATIVE DATA
4 MOS. 1963 - 38.1
4 " 1962 - 32.4
12 " 1962 - 218.0
FLORIDA
CUMULATIVE DATA
3 MOS. 1963 - 36.6
3 " 1962 - 34.5
12 " 1962 - 184.4
ALABAMA, LOUISIANA, MISSISSIPPI, AND TEXAS
CUMULATIVE DATA
2 MOS. 1963 - 17.8
2 " 1962 - 13.7
12 " 1962 - 1,218.1
CALIFORNIA 1/
CUMULATIVE DATA
4 MOS. 1963 - 144.8
4 " 1962 - 149.8
12 " 1962 - 521.2
OHIO
CUMULATIVE DATA
3 MOS. 1963 - 0.4
3 " 1962 - 0.5
12 " 1962 - 15.2

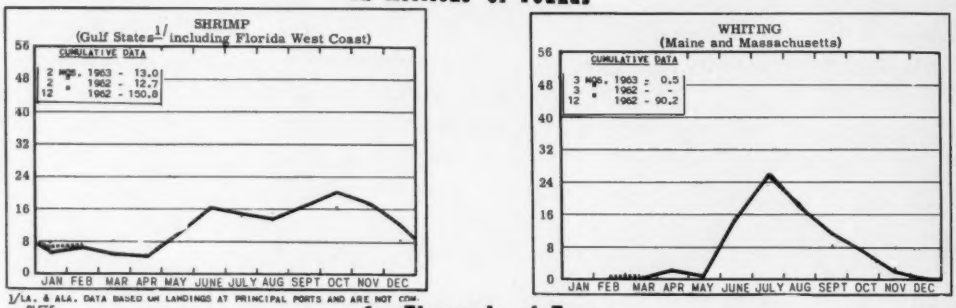
1/ONLY PARTIAL--INCLUDING PRODUCTION OF MAJOR FISHERIES AND MARKET FISH LANDINGS AT PRINCIPAL PORTS.

CHART 2 - LANDINGS for SELECTED FISHERIES

In Millions of Pounds

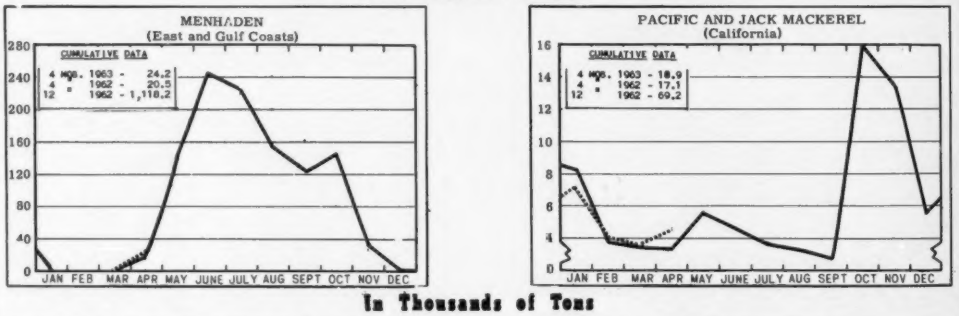


In Millions of Pounds

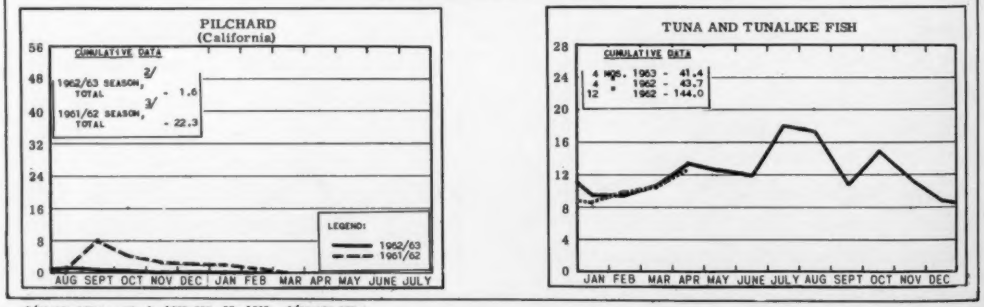

SHRIMP
(Gulf States 1/ including Florida West Coast)
CUMULATIVE DATA
2 MOS. 1963 - 13.0
2 " 1962 - 12.7
12 " 1962 - 150.8
WHITING
(Maine and Massachusetts)
CUMULATIVE DATA
3 MOS. 1963 - 0.5
3 " 1962 - -
12 " 1962 - 90.2
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

1/LA. & ALA. DATA BASED ON LANDINGS AT PRINCIPAL PORTS AND ARE NOT COMPLETE.

In Thousands of Tons


MENHADEN
(East and Gulf Coasts)
CUMULATIVE DATA
4 MOS. 1963 - 24.2
4 " 1962 - 20.5
12 " 1962 - 1,118.2
PACIFIC AND JACK MACKEREL
(California)
CUMULATIVE DATA
4 MOS. 1963 - 18.9
4 " 1962 - 17.1
12 " 1962 - 69.2
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

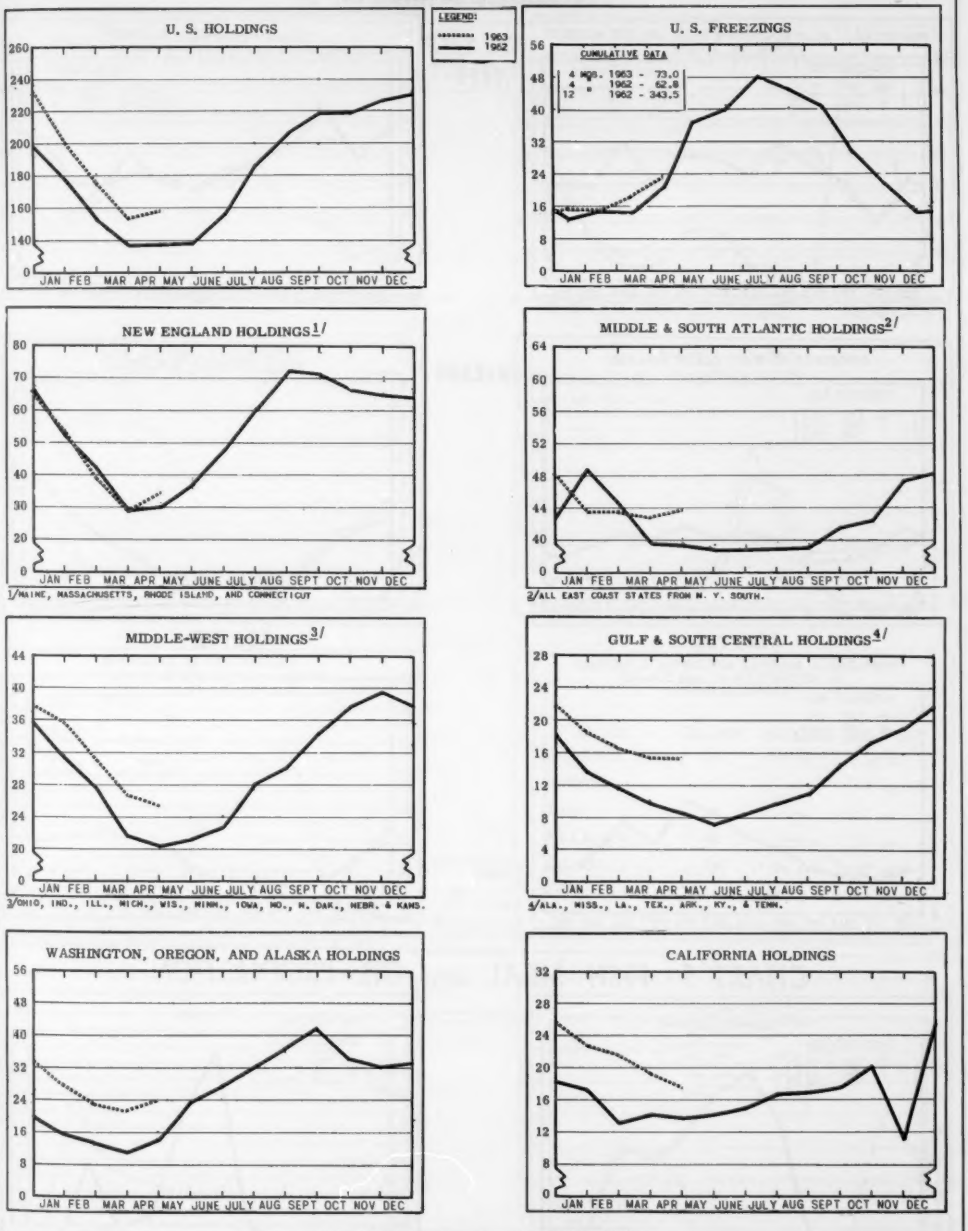
In Thousands of Tons


PILCHARD
(California)
CUMULATIVE DATA
1962/63 SEASON, TOTAL 2/ - 1.6
1961/62 SEASON, TOTAL 3/ - 22.3
LEGEND:
1962/63
1961/62
TUNA AND TUNALIKE FISH
CUMULATIVE DATA
4 MOS. 1963 - 41.4
4 " 1962 - 43.7
12 " 1962 - 144.0
AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUNE JULY
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

2/SEASON TOTAL, AUG. 1, 1962-FEB. 28, 1963. 3/SEASON TOTAL, AUG. 1, 1961-FEB. 28, 1962.

CHART 3 - COLD-STORAGE HOLDINGS and FREEZINGS of FISHERY PRODUCTS *

In Millions of Pounds


U. S. HOLDINGS
LEGEND:
1963
1962
U. S. FREEZINGS
CUMULATIVE DATA
4 MOS. 1963 - 73.0
4 " 1962 - 62.8
12 " 1962 - 343.5
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC
NEW ENGLAND HOLDINGS 1/
MIDDLE & SOUTH ATLANTIC HOLDINGS 2/
MIDDLE-WEST HOLDINGS 3/
GULF & SOUTH CENTRAL HOLDINGS 4/
WASHINGTON, OREGON, AND ALASKA HOLDINGS
CALIFORNIA HOLDINGS

1/MAINE, MASSACHUSETTS, RHODE ISLAND, AND CONNECTICUT

2/ALL EAST COAST STATES FROM N. Y. SOUTH.

3/OHIO, IND., ILL., MICH., WIS., MINN., IOWA, MO., N. DAK., NEBR. & KANS.

4/ALA., MISS., LA., TEX., ARK., KY., & TENN.

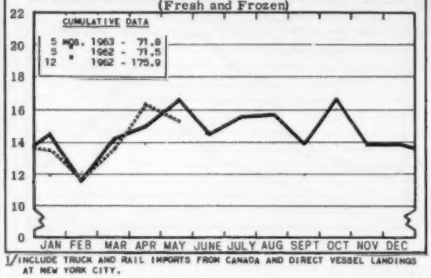
* Excludes salted, cured, and smoked products.

CHART 4 - RECEIPTS and COLD-STORAGE HOLDINGS of FISHERY PRODUCTS at PRINCIPAL DISTRIBUTION CENTERS

In Millions of Pounds

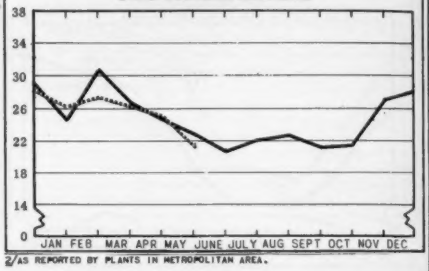
NEW YORK CITY

RECEIPTS 1/ AT WHOLESALE SALT-WATER MARKET (Fresh and Frozen)



1/INCLUDE TRUCK AND RAIL IMPORTS FROM CANADA AND DIRECT VESSEL LANDINGS AT NEW YORK CITY.

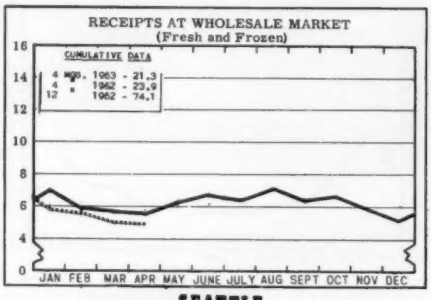
COLD-STORAGE HOLDINGS 2/



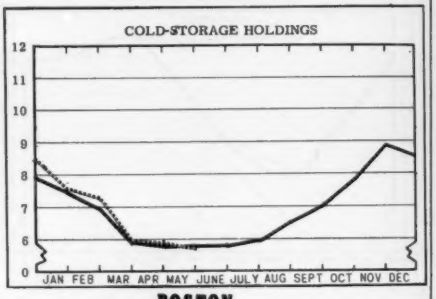
2/AS REPORTED BY PLANTS IN METROPOLITAN AREA.

CHICAGO

RECEIPTS AT WHOLESALE MARKET (Fresh and Frozen)

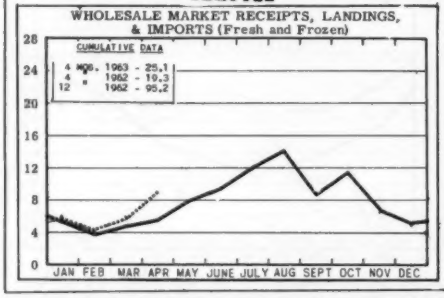


COLD-STORAGE HOLDINGS



SEATTLE

WHOLESALE MARKET RECEIPTS, LANDINGS, & IMPORTS (Fresh and Frozen)



BOSTON

COLD-STORAGE HOLDINGS

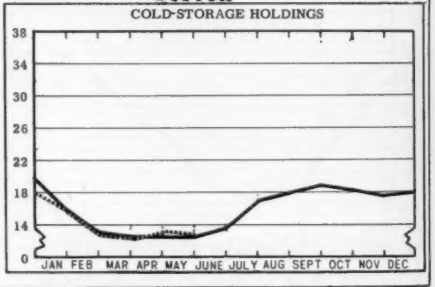
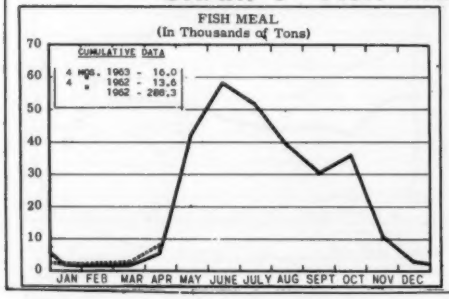


CHART 5 - FISH MEAL and OIL PRODUCTION

FISH MEAL (In Thousands of Tons)



FISH OIL

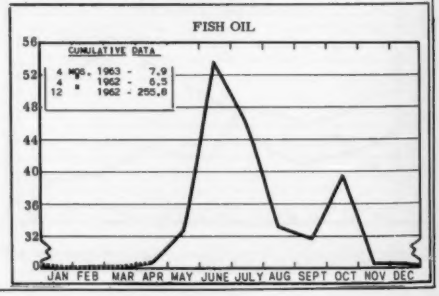
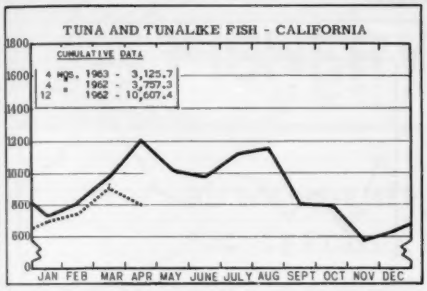
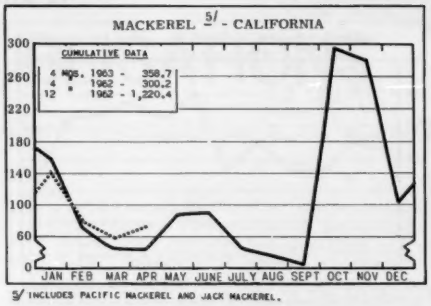


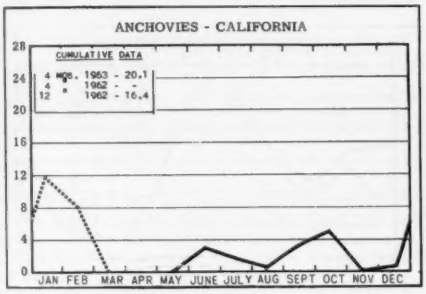
CHART 6 - CANNED PACKS of SELECTED FISHERY PRODUCTS

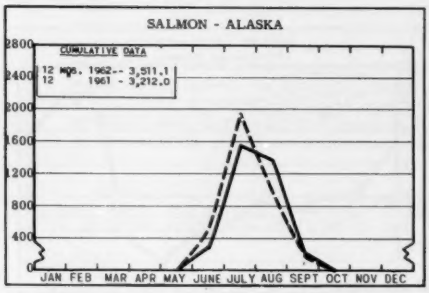
In Thousands of Standard Cases

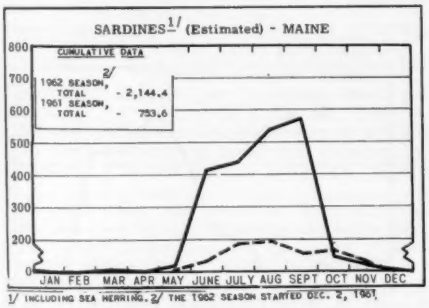

TUNA AND TUNALIKE FISH - CALIFORNIA
CUMULATIVE DATA
4 MOS. 1963 - 3,125.7
4 " 1962 - 3,757.3
12 " 1962 - 10,607.4
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC


MACKEREL 5/ - CALIFORNIA
CUMULATIVE DATA
4 MOS. 1963 - 358.7
4 " 1962 - 300.2
12 " 1962 - 1,220.4
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

5/ INCLUDES PACIFIC MACKEREL AND JACK MACKEREL.



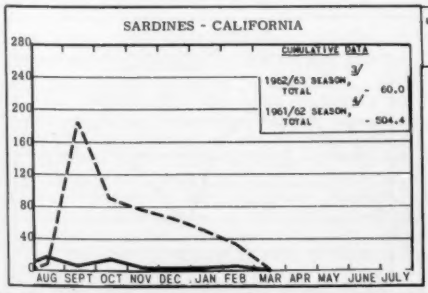


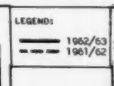

SARDINES 1/ (Estimated) - MAINE
CUMULATIVE DATA
2/
1962 SEASON, TOTAL - 2,144.4
1961 SEASON, TOTAL - 753.6
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

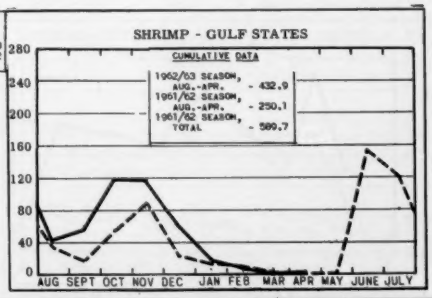
1/ INCLUDING SEA HERRING. 2/ THE 1962 SEASON STARTED DEC. 2, 1961.

STANDARD CASES

Variety	No. Cans	Designation	Net Wgt.
SARDINES.....	100	¼ drawn	3¾ oz.
SHRIMP.....	48	--	5 oz.
TUNA.....	48	# ½ tuna	6 & 7 oz.
PILCHARDS...	48	# 1 oval	15 oz.
SALMON.....	48	1-lb. tall	16 oz.
ANCHOVIES...	48	½-lb.	8 oz.


SARDINES - CALIFORNIA
CUMULATIVE DATA
3/
1962/63 SEASON, TOTAL - 60.0
4/
1961/62 SEASON, TOTAL - 504.4
AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUNE JULY

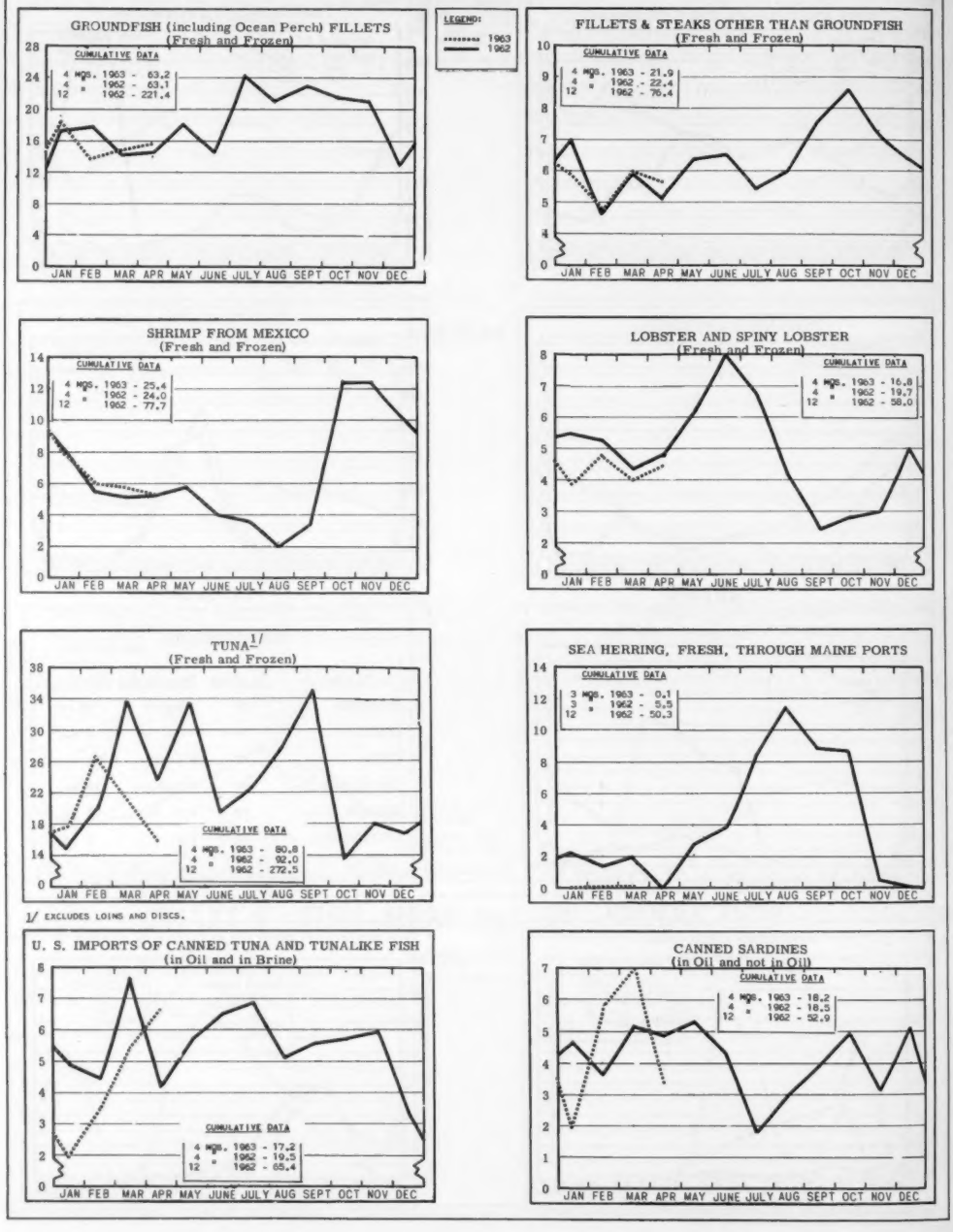



SHRIMP - GULF STATES
CUMULATIVE DATA
1962/63 SEASON, AUG.-APR. - 432.9
1961/62 SEASON, AUG.-APR. - 250.1
1961/62 SEASON, TOTAL - 589.7
AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUNE JULY

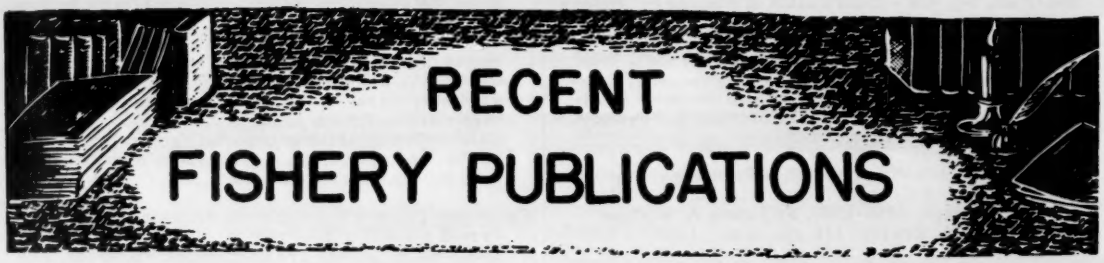
3/ SEASON TOTAL, AUG. 1, 1962-FEB. 28, 1963.
4/ SEASON TOTAL, AUG. 1, 1961-FEB. 28, 1962.

CHART 7 - U.S. FISHERY PRODUCTS IMPORTS

In Millions of Pounds


GROUNDFISH (including Ocean Perch) FILLETS
(Fresh and Frozen)
CUMULATIVE DATA
4 MOS. 1963 - 63.2
4 " 1962 - 63.1
12 " 1962 - 221.4
LEGEND:
1963
1962
FILLETS & STEAKS OTHER THAN GROUNDFISH
(Fresh and Frozen)
CUMULATIVE DATA
4 MOS. 1963 - 21.9
4 " 1962 - 22.4
12 " 1962 - 76.4
SHRIMP FROM MEXICO
(Fresh and Frozen)
CUMULATIVE DATA
4 MOS. 1963 - 25.4
4 " 1962 - 24.0
12 " 1962 - 77.7
LOBSTER AND SPINY LOBSTER
(Fresh and Frozen)
CUMULATIVE DATA
4 MOS. 1963 - 16.8
4 " 1962 - 19.7
12 " 1962 - 58.0
TUNA 1/
(Fresh and Frozen)
CUMULATIVE DATA
4 MOS. 1963 - 80.8
4 " 1962 - 92.0
12 " 1962 - 272.5
SEA HERRING, FRESH, THROUGH MAINE PORTS
CUMULATIVE DATA
3 MOS. 1963 - 0.1
3 " 1962 - 5.5
12 " 1962 - 50.3
U. S. IMPORTS OF CANNED TUNA AND TUNALIKE FISH
(in Oil and in Brine)
CUMULATIVE DATA
4 MOS. 1963 - 17.2
4 " 1962 - 19.5
12 " 1962 - 65.4
CANNED SARDINES
(in Oil and not in Oil)
CUMULATIVE DATA
4 MOS. 1963 - 18.2
4 " 1962 - 18.5
12 " 1962 - 52.9
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

1/ EXCLUDES LOINS AND DISCS.



FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE OFFICE OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES.
MNL - REPRINTS OF REPORTS ON FOREIGN FISHERIES.
SEP. - SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.
SL - STATISTICAL LISTS OF DEALERS IN AND PRODUCERS OF FISHERY PRODUCTS AND BYPRODUCTS.
SSR. - FISH. - SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).

Number — Title

CFS-3132 - North Carolina Landings, January 1963, 4 pp.
CFS-3134 - Fish Meal and Oil, January 1963, 2 pp.
CFS-3136 - New Jersey Landings, January 1963, 4 pp.
CFS-3137 - Virginia Landings, December 1962, 4 pp.
CFS-3140 - Frozen Fishery Products, February 1963, 8 pp.
CFS-3141 - Packaged Fishery Products, 1962 Annual Summary, 5 pp.
CFS-3143 - New York Landings, January 1963, 4 pp.
CFS-3144 - Canned Fishery Products, 1962 Annual Summary, 17 pp.
CFS-3145 - Mississippi Landings, January 1963, 2 pp.
CFS-3147 - Rhode Island Landings, January 1963, 3 pp.
CFS-3148 - Shrimp Landings, August 1962, 8 pp.
CFS-3149 - Louisiana Landings, January 1963, 2 pp.
CFS-3151 - Massachusetts Landings, November 1962, 6 pp.
CFS-3152 - Georgia Landings, February 1963, 3 pp.
CFS-3154 - Virginia Landings, January 1963, 3 pp.
CFS-3155 - South Carolina Landings, February 1963, 3 pp.
CFS-3156 - North Carolina Landings, February 1963, 4 pp.
CFS-3157 - Industrial Fishery Products, 1962 Annual Summary, 9 pp.
CFS-3158 - Florida Landings, February 1963, 8 pp.
CFS-3200 - Fisheries of the United States, 1962 (A Preliminary Review), 78 pp., illus., April 1963. This bulletin includes 1962 statistics on the United States catch; historical fishery data; employment, craft, and plants; per capita consumption; manufactured fishery products; price indexes; value of military purchases of fishery products; population and fish supply; foreign trade; financial assistance programs; supplies of certain fishery products; and world fisheries. The catch in 1962 amounted to 5.2 billion pounds valued at $381 million to the fishermen. Of the catch, 2.5 billion pounds were used for human food while the remainder was used for bait and animal food and for the manufacture of industrial products. The per capita consumption of commercially-caught fish and shellfish in 1962 amounted to 10.5 pounds--0.2 pounds less than in the previous year. Included in the bulletin for the first time are estimated data on the consumption of domestic and imported fish and shellfish, and on the per capita consumption of fishery products in most of the important countries in the world. Also included is a tabulation showing years in which fishing vessels were constructed. In addition, there is a new section which lists, alphabetically, 16 species of fish and shellfish and, for each, the types of information presented and the pages on which each appears.

THE FOLLOWING MARKET NEWS LEAFLETS ARE AVAILABLE FROM THE FISHERY MARKET NEWS SERVICE, U. S. BUREAU OF COMMERCIAL FISHERIES, SUITE 611, WYATT BLDG., 777 14TH ST. NW., WASHINGTON 5, D. C.

Number — Title

MNL-63 - Egyptian Fisheries, 1961, 8 pp.
MNL-77 - Fisheries Survey of Ghana, 19 pp.
MNL-78 - Fishery Developments in Senegal, 12 pp.
MNL-79 - Fisheries Survey of Nigeria, 12 pp.

Sep. No. 675 - Comparison of Salmon Catches in Monofilament and Multifilament Gill Nets.

Sep. No. 676 - Present and Future Market for Fish Oil.

Firms Canning, 1962 (Revised):

SL-101 - Salmon, 3 pp.
SL-102 - Maine Sardines, 1 p.
SL-102A - Pacific Sardines, 1 p.
SL-103 - Tuna, 2 pp.
SL-103A - Tunalike Fishes, 1 p.
SL-104 - Mackerel, 1 p.
SL-105 - Alewives, 1 p.
SL-106 - Shad, 1 p.
SL-107 - Fish and Shellfish Specialities, 5 pp.
SL-109 - Caviar and Fish Roe, 2 pp.
SL-110 - Oysters, 2 pp.
SL-111 - Clam Products, 2 pp.

SSR-Fish. No. 401 - Survey of the Benthic Invertebrate Fauna of the Eastern Bering Sea, by Patsy A. McLaughlin, 77 pp., illus., 1963.

SSR-Fish. No. 430 - The Length, Age, and Sex Ratio of Chum Salmon in the Alaska Peninsula, Kodiak Island, and Prince William Sound Areas of Alaska, by Fredrik V. Thorsteinson, Wallace H. Noerenberg, and Howard D. Smith, 88 pp., illus., 1963.

SSR-Fish. No. 434 - Distribution of Fishing by Purse-Seine Vessels for Atlantic Menhaden, 1955-1959, by Charles M. Roithmayr, 26 pp., illus., 1963.

SSR-Fish. No. 438 - Length and Age Frequency Samples Collected from Georges Bank Haddock Landings, 1931-1955, by James A. McCann and Frank A. Dreyer, 131 pp., illus., 1963.

SSR-Fish. No. 439 - Length and Age Frequency Samples Collected from Georges Bank and Gulf of Maine Haddock Landings, 1956-1960, by James A. McCann and Frank A. Dreyer, 116 pp., illus., 1963.

Safety Manual for Fishermen, Captains, and Owners of New England Fishing Vessels, by John J. Murray, Circular 150, 68 pp., illus., printed, July 1962. This manual was prepared in accordance with the safety philosophies and safety practices of American industry. Deals with fundamentals and presents, in condensed form, safety suggestions and practices which, it is hoped, will soon become common knowledge. Among the subjects covered are deck and engineroom safety, lifesaving equipment, fire, weather worries, and first aid at sea. With all the policies, manuals, and rules, the best safety device is still "a careful man," according to the author.

THE FOLLOWING PUBLICATIONS ARE AVAILABLE ONLY FROM THE SPECIFIC OFFICE MENTIONED.

(Baltimore) Monthly Summary--Fishery Products, February 1963, 8 pp. (Market News Service, U.S. Fish and Wildlife Service, 103 S. Gay St., Baltimore 2, Md.) Receipts of fresh- and salt-water fish and shellfish at Baltimore by species and by states and provinces; total receipts by species and comparisons with previous periods; and wholesale prices for fresh fishery products on the Baltimore market; for the month indicated.

California Fisheries, 1962, by V. J. Samson, 52 pp., illus., March 1963. (Market News Service, U. S. Fish and Wildlife Service, Room 208, Post Office Bldg., San Pedro, Calif.) A review of 1962 trends and conditions in the California fisheries, including a historical review of California fish-meal prices, 1941-1962. Among the subjects discussed are the tuna industry and cannery receipts; domestic tuna fishery; decline in yellowfin catch; albacore fishery; ex-vessel tuna prices; canned tuna pack; imports; and status of California purse-seine fleets and the clipper-bait boat fleet in 1962. Also covered are the sardine industry and canned pack; mackerel fishery pack, and prices; anchovy fishery; canned pet-food pack; whaling industry; and seasons in major fisheries. Included in the statistical tables are data on tuna and tunalike fish--canners' receipts, domestic landings, frozen imported tuna, and canned pack, 1960-1962; sardine landings, pack, and meal and oil produced, 1961-1962 and 1962-1963 seasons; and the canners' receipts and pack of mackerel and jack mackerel, 1960-1962. Contains data on canners' receipts of raw materials and production of anchovies, herring, squid, pet food, and meal and oil; landings of fish and shellfish in the Eureka and San Pedro-Santa Monica areas; imports of fishery products into Arizona and California Customs Districts, 1961-1962; and California whale fishery, 1960-1962.

California Fishery Market News Monthly Summary, Part I - Fishery Products Production and Market Data, February 1963, 14 pp. (Market News Service, U. S. Fish and Wildlife Service, Post Office Bldg., Room 208, San Pedro, Calif.) California cannery receipts of tuna and tunalike fish and other species used for canning; pack of canned tuna, tunalike fish, sardines, mackerel, and anchovies; market fish receipts at San Pedro, Santa Monica, and Eureka areas; California and Arizona imports; canned fish and frozen shrimp prices; ex-vessel prices for cannery fish; for the month indicated.

California Fishery Market News Monthly Summary, Part II - Fishing Information, March 1963, 16 pp., illus. (U. S. Bureau of Commercial Fisheries, Biological Laboratory, P. O. Box 6121, Pt. Loma Station, San Diego 6, Calif.) Contains sea-surface temperatures, fishing and research information of interest to the West Coast tuna-fishing industry and marine scientists; for the month indicated.

Monthly Summary of Fishery Products Production in Selected Areas of Virginia, North Carolina, and Maryland, March 1963, 4 pp. (Market News Service, U. S. Fish and Wildlife Service, 18 S. King St., Hampton, Va.) Landings of food fish and shellfish and production of crab meat and shucked oysters for the Virginia areas of Hampton Roads, Chincoteague, Lower Northern Neck, and Lower Eastern Shore; the Maryland areas of Crisfield, Cambridge, and Ocean City; and the North Carolina areas of Atlantic, Beaufort, and Morehead City; together with cumulative and comparative data on fishery products and shrimp production; for the month indicated.

New England Fisheries--Annual Summary, 1962, by John J. O'Brien, 46 pp., illus., April 1963. (Market News Service, U. S. Fish and Wildlife Service, 10 Commonwealth Pier, Boston 10, Mass.) Reviews the fish marketing trends and conditions at the principal New England fishery ports, and highlights of fisheries in nearby areas. The development of a large-scale purse-seine tuna fishery in New England made considerable progress in 1962. The summary covers food-fish landings by ports and species; industrial fish landings and ex-vessel prices; fishing vessel news; imports; frozen fishery products; the fish-meal market; swordfish long-lining; Soviet vessels on Georges Bank; and other information. Also includes fishery landings and ex-vessel prices by months for ports of Boston, Gloucester, New Bedford, Provincetown, Portland, Rockland, Point Judith, and Stonington; highlights of the Maine sardine and lobster fisheries; events in the fisheries of Canada, Denmark, Iceland, Norway, Japan, and Peru; and historical data of fisheries at principal New England ports. In addition, contains data on monthly landings and ex-vessel prices, by species at Boston and Atlantic Ave. fish piers.

New England Fisheries--Monthly Summary, March 1963, 23 pp. (Market News Service, U. S. Fish and Wildlife Service, 10 Commonwealth Pier, Boston 10, Mass.) Review of the principal New England fishery ports. Presents data on fishery landings by ports and species; industrial-fish landings and ex-vessel prices; imports; cold-storage stocks of fishery products in New England warehouses; fishery landings and ex-vessel prices for ports in Massachusetts (Boston, Gloucester, New Bedford, Provincetown, and Woods Hole), Maine (Portland and Rockland), Rhode Island (Point Judith), and Connecticut (Stonington); frozen fishery products prices to primary wholesalers at Boston, Gloucester, and New Bedford; and Boston

Fish Pier and Atlantic Avenue fishery landings and ex-vessel prices by species; for the month indicated.

Refrigeration (Table of Contents), by Junkichi Nagaoka and Kazuo Tanaka, 9 pp., processed. (Translated from the Japanese Suisangaku Zenshu, vol. 7, 458 pp.) (U.S. Fish and Wildlife Service, Bureau of Commercial Fisheries, 101 Seaside Ave., Terminal Island, Calif.)

Seattle--Landings, Receipts, and Value of Fishery Products, 1962, by Charles M. Reardon, 34 pp., April 1963. (Market News Service, U.S. Fish and Wildlife Service, 706 Federal Office Bldg., 909 First Ave., Seattle 4, Wash.) Reviews Pacific Northwest fisheries trends and their effect upon Seattle fishery receipts for 1962. Contains statistical tables on landings by U.S. halibut fleet; carload and truckload shipments of fishery products from Seattle by months; imports of canned fishery products; receipts of Alaska canned fish and shellfish; and names, classifications, and approximate standards as used on Seattle wholesale market. Also presents data on receipts of fresh and frozen fish and shellfish, fresh and frozen salmon receipts and imports, receipts of fresh and frozen king crab, Pacific oysters, and shrimp at Seattle, ex-vessel landings by the otter-trawl fleet, Puget Sound canned salmon pack, and related information.

(Seattle) Washington and Alaska Receipts and Landings of Fishery Products for Selected Areas and Fisheries, Monthly Summary, March 1963, 6 pp. (Market News Service, U.S. Fish and Wildlife Service, 706 Federal Office Bldg., 909 First Ave., Seattle 4, Wash.) Includes Seattle's landings by the halibut and salmon fleets reported through the exchanges; landings of halibut reported by the International Pacific Halibut Commission; landings of otter-trawl receipts reported by the Fishermen's Marketing Association of Washington; local landings by independent vessels; coastwise shipments from Alaska by scheduled and non-scheduled shipping lines and airways; imports from British Columbia via rail, motor truck, shipping lines, and ex-vessel landings; imports from other countries through Washington customs district; and Washington heads-on shrimp landings; for the month indicated.

MISCELLANEOUS PUBLICATIONS

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ALGAE:

**The Food Value of Diatomaceous Algae, by G. K. Barashkov, Trans. A-1375, 3 pp., processed. (Translated from the Russian, Priroda, no. 6, 1960, p. 100.)

"The Species of Gracilaria and Gracilariopsis from Japan and Adjacent Waters," by Hikoei Ohmi, article, Memoirs of the Faculty of Fisheries, Hokkaido University, vol. 6, no. 1, 1958, 66 pp., illus., printed in Japanese. Faculty of Fisheries, Hokkaido University, Hakodate, Japan.

ARGENTINA:

Peces Argentinos de Agua Dulce. Claves de Reconocimiento y Caracterizacion de Familias y Sub-Familias, con Glosario Explicativo (Argentina's Fresh-Water Fish. Keys to the Identification and Description of Families and Sub-Families with Explicit Glossary), by Raul A. Ringuelet and Raul H. Aramburu, Agro Publicacion Tecnica, vol. 3, no. 7, March 1961, 102 pp., illus., printed in Spanish. Ministerio de Asuntos Agrarios, Buenos Aires, Argentina.

Peces Marinos de la Republica Argentina. Clave para el Reconocimiento de Familias y Generos (Marine Fish of the Republic of Argentina. Key to the Identification of Families and Genera), by Raul A. Ringuelet and Raul H. Aramburu, Agro Publicacion Tecnica, vol. 2, no. 5, November 1960, 143 pp., illus., printed in Spanish. Ministerio de Asuntos Agrarios, Buenos Aires, Argentina.

Produccion Pesquera de la Republica Argentina Ano 1961 (Fishery Production in the Republic of Argentina, 1961), 113 pp., illus., processed in Spanish. Departamento de Investigaciones Pesqueras, Direccion General de Pesca, Secretaria de Estado de Agricultura y Ganaderia, Buenos Aires, Argentina.

CANADA:

"Canadian Fisheries in 1962," article, Trade News, vol. 15, no. 8, February 1963, pp. 9-12, 15, illus., processed. Information and Consumer Service, Department of Fisheries, Ottawa, Canada. Discusses the Atlantic fisheries, and the industry in the Maritime Provinces, Newfoundland, British Columbia, and the inland provinces. "Canadian fisheries were more prosperous in 1962 than at any previous time in their history. Top records of previous years were surpassed in every major sector with expansion spilling over to add impetus to the construction and boat-building industries also," according to the author.

Journal of the Fisheries Research Board of Canada, vol. 20, no. 1, January 1963, 254 pp., illus., printed, single copy C$1.50. Queen's Printer and Controller Stationery, Ottawa, Canada. Includes, among others, these articles: "The Nature of an Unusual Amino Acid-Pyrimidine Complex from the Cod Parasite, Porrocaecum decipiens," by H. C. Freeman, P. L. Hoogland, and P. H. Odense; "Sampling the Catch of a Research Vessel," by J. E. Paloheimo and L. M. Dickie; "Estimation of Catchabilities and Population Sizes of Lobsters," by J. E. Paloheimo; "The Air Blowing of Cod Liver Oil. II--Changes in Fatty Acid Composition as Determined by Gas-Liquid Chromatography," by P. M. Jangaard and others; "Resumption of Feeding by and Survival of Adult Sockeye Salmon (Oncorhynchus nerka); Following Advanced Gonad Development," by J. R. McBride and others; "Oceanography of the Subarctic Pacific Ocean," by

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Michitaka Uda; and "An Estimation of the Mortality Rates in a Population of Tilapia esculenta Graham (Pisces, Cichlidae) in Lake Victoria, East Africa," by D. J. Garrod.

List of Publications. The Department of Fisheries of Canada, no. 1, October 1962, 21 pp., printed. Information and Consumer Service, Department of Fisheries of Canada, Ottawa, Canada. The publications listed include contributions by the various Services of the Federal Department of Fisheries, Dominion Bureau of Statistics, Fisheries Research Board of Canada and National Research Council. They include both sale and free copies and are of many types--periodicals, booklets, reprints of published articles, cookery bulletins, statistical reports, research circulars, and others.

CANNED FISH:

Report on the Market for Canned Fish, by G. M. Gerhardsen, E. P. A. Project No. 8/12-A, 334 pp., processed, limited distribution. Technical Actions Division, Agricultural Directorate, Organisation for Economic Co-Operation and Development, 2 Rue Andre Pascal, Paris, France, February 1963. (Also available (limited distribution) from Organisation for Economic Co-Operation and Development, 1346 Connecticut Ave. NW., Washington, D. C.) The final report of a survey based on information supplied by O. E. C. D. member countries in reply to a questionnaire, supplemented by data collected by the author. Canned fish constitutes not only a specially appreciated addition to modern food supplies but a permanent additional outlet for the fishermen, whose standard of living depends to some extent on the expansion of the fish-canning industry; states the foreword. After a brief account of the findings of the survey and a presentation of recommendations, the report discusses fishery products markets in Belgium, Canada, Denmark, France, Germany, Greece, Iceland, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Turkey, United Kingdom, United States, and Yugoslavia. Also presents statistics on markets in Austria and Switzerland.

CARP:

Report of the State Development Committee on the Introduction of European Carp into Victorian Waters, 24 pp., illus., printed. Fisheries and Wildlife Department, 605 Flinders St. Extension Melbourne C3, Australia, 1962. Presents research results and recommendations on eradication of the European carp in inland waters of the State of Victoria, Australia. European carp and its domesticated forms adversely affect the welfare of other species of fresh-water fish by competing directly with young fish of other species for food; competing with other species for space; and destroying aquatic vegetation. According to the report, it was recommended that enabling legislation be passed to destroy all carp now present in Victorian waters and prevent their further introduction.

COD:

Biological Characteristics of the Separate Groups of the Barents Sea Cod, by E. M. Mankevich, 14 pp., processed. (Translated from the Russian Sovetskie Rybokhoziaistvennye Issledovaniia v Severo-Zapadnoi Chasti Atlinticheskogo Okeana, pp. 253-266, 1960.) Ministry of Agriculture, Fisheries and Food, Fisheries Laboratory, Lowestoft, Suffolk, England, 1962.

"Success to the Fisheries," article, Production Road, vol. 24, no. 4, 1962, pp. 3-4, illus., printed. Twin Disc Clutch Company, Racine, Wis. Discusses the history, food value, and economic significance of the cod in the New England fishery. The importance of the cod to the early history of this area was demonstrated by its being placed on the colonial seal of Massachusetts, and on the Nova Scotian banknote with the legend "Success to the Fisheries."

COMMON MARKET:

"Le Tarif Exterieur Commun Inquiete les Milieux Canadiens de la Peche" (Common External Tariffs of Concern to Canadian Fishing Circles), article, La Peche Maritime, vol. 42, no. 1019, February 1963, p. 112, printed in French, single copy 11 NF (about US$2.25). Les Editions Maritimes, 190 Boulevard Haussmann, Paris 8, France.

CONNECTICUT:

A Fishery Survey of the Lakes and Ponds of Connecticut, Report no. 1, 395 pp., illus., printed. State Board of Fisheries and Game, Lake and Pond Survey Unit, Hartford, Conn., 1959.

CRABS:

Composition of the Diet of Far-Eastern Crabs of Commercial Quality During the Summer, by M. S. Kun and L. V. Mikulich, 12 pp., processed. (Translated from the Russian Izvestia - Tinro, vol. 41, 1954, pp. 319-332.) Ministry of Agriculture, Fisheries and Food, Fisheries Laboratory, Lowestoft, Suffolk, England, 1962.

The Feeding Habits of the Kamchatka Crab in the Spring-Summer Period on the Coasts of Kamchatka and Sakhalin, by V. A. Kulichkova, 21 pp., processed. (Translated from the Russian Bull. Tinro, vol. 43, 1955, pp. 21-43.) Ministry of Agriculture, Fisheries and Food, Fisheries Laboratory, Lowestoft, Suffolk, England. 1962.

CRUSTACEA:

Crustacea, Anomura, by V. V. Makarov, OTS 60-21822, 286 pp., illus., printed, $3. (Translated from the Russian, Fauna SSSR, Rakoobraznye, vol. X, no. 3, 1938, Izdatel'stvo Akademii Nauk SSSR, Moscow, U.S.S.R.) Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C., 1962.

"The Specific Features of the Copepod Populations in the Tropical Portion of Pacific Ocean from the Viewpoint of Age Composition," by A. K. Heinrich, article, Okeanologiia, vol. 3, no. 1, January 1963, pp. 88-99, printed in Russian. Akademiia Nauk SSSR, Moscow, U.S.S.R.

CZECHOSLOVAKIA:

Prace Laboratoria Rybarstva (Studies Done in the Fisheries Laboratory at Bratislava, Czechoslovakia), 231 pp., illus., printed in Slovak with Russian and English summaries. Vydavatel'stvo Slovenskej Akademie Vied, Bratislava, Czechoslovakia, 1962. Includes, among others, these articles: "Seven Years Activity of Laboratory of Fishery Research in Bratislava," by Frantisek Havlena; "Age and Growth of the Chub (Leuciscus cephalus (L.) in Orava River

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(1944-1952), and in Orava Riverine Lake in the Years Following Its Filling (1953-1958)," by Eugeniusz K. Balon; "Age and Growth of the Chub (Leuciscus cephalus (L.) in the Vah River and Her Branches Near Piestany," by Anton Kirka; "Age and Growth of Salmo trutta m. fario, Salmo gairdneri irideus, Salvelinus fontinalis, and Thymallus thymallus in the brook of Vrica Near Klastor pod Znievom," by Anton Kirka; and "The Haul Seine Fishing on Danube River Near Palkovicovo," by Julius Bel.

DELAWARE RIVER:
Fishes and Ecological Conditions in the Shore Zone of the Delaware River Estuary, with Notes on Other Species Collected in Deeper Water, by Donald P. de Sylva, Frederick A. Kalber, Jr., and Carl N. Shuster, Jr., Information Series, Publication No. 5, 167 pp., illus., processed. University of Delaware Marine Laboratories, Newark, Del., April 1962.

DENMARK:
"Danmarks Produktion af Konserverede Levnedsmidler i 1960" (The Production of Canned Food Products in Denmark in 1960), by Poul Fr. Jensen, article, Konserves & Dybfrost, vol. 20, no. 11, 1962, pp. 138-140, 141, printed in Danish. Konserves & Dybfrost, Vester Farimagsgade, 31, Copenhagen V, Denmark.

FISH BEHAVIOR:
"Fish Behaviour. I--The Migrations of Fish," by A. D. Woodhead, article, World Fishing, vol. 12, no. 3, March 1963, pp. 37-39, illus., printed, single copy 3s. (about 42 U.S. cents). John Trundell & Partners Ltd., St. Richard's House, Eversholt St., London NW1, England.

FISH CULTURE:
Increased Harvest of Warm Water Fish Through Supplemental Feeding, by Ralph William Altman, 128 pp., illus., processed. (Submitted to the Faculty of the Graduate School of the Oklahoma State University in partial fulfillment of the requirements for the degree of Doctor of Philosophy, May, 1959.) Oklahoma State University, Stillwater, Okla.

FISH POPULATIONS:
Certain of the Laws Governing the Effect of Fishing Operations on the Structure of Populations and the Individual Characteristics of Fish Belonging to Commercially Exploited Stocks, by G. V. Nikolskii, 21, pp., processed. (Translated from the Russian Trudy Soveshchanii, Ikht. Kom., no. 13, pp. 21-33, 1961.) Ministry of Agriculture, Fisheries and Food, Fisheries Laboratory, Lowestoft, Suffolk, England, 1962.

The Laws Governing the Dynamics of Fish Populations, by T. F. Dementieva and others, 19 pp., processed. (Translated from the Russian Trudy Soveshchanii, Ikht. Kom., no. 13, pp. 7-20, 1961. Ministry of Agriculture, Fisheries and Food, Fisheries Laboratory, Lowestoft, Suffolk, England, 1962.

FISHERY REGULATION:
Economic Effects of Fishery Regulation, edited by R. Hamlisch, FAO Fisheries Reports No. 5, 566 pp., illus., processed. Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, 1962. Working papers and record of discussions of an FAO Expert Meeting on the Economic Effects of Fishery Regulation, Ottawa, Canada, June 12-17, 1961. This meeting, in which economists, biologists, and administrators participated, was organized to take up discussions of the economic effects of fishing industry regulation where preceding FAO-sponsored conferences (the Round Table on the Economics of Fisheries in 1956 and the Technical Meeting on Costs and Earnings of Fishing Enterprises in 1958) had left off. Subjects covered include: the economics of regulating fisheries; effects of fishery regulations on the catch of fish; the economic effects of the regulation of the trawl fisheries of Japan; regulation in the North American lobster fishery; license limitation--British Columbia; regulation of the Pacific Coast halibut fishery; and regulation of the South African West Coast shoal fisheries. The appendices include these papers: "On some Aspects of Fishery Conservation Problems," and "Application of Mathematical Programming Techniques to Commercial Fishery Conservation Problems," by A. Zellner; "The Case for Regulations of the Shrimp Fishery of Panama," by L. K. Boerema and J. L. Obarrio; "Effects of Fishery Regulation on the Processing and Marketing of Fishery Products," by W. H. Stolting; and "Great Lakes Commercial Fishing Regulations," by K. D. Brouillard.

FISHING DEVICES:
Relative Selectivity of Freshwater Commercial Fishing Devices Used in Louisiana, by James Davis and Lloyd Posey, 27 pp., illus., processed. Louisiana Wild Life and Fisheries Commission, Baton Rouge, La., 1959.

FISHING LIMITS:
"Foreign Trawlers: Exclusion or Control?" article, World Fishing, vol. 12, no. 3, March 1963, pp. 29-32, illus., printed, single copy 3s. (about 42 U.S. cents). John Trundell & Partners Ltd., St. Richard's House, Eversholt St., London NW1, England.

FLORIDA:
The Shallow Water Amphiurid Brittle Stars (Echinodermata, Ophiuroidea) of Florida, by Lowell P. Thomas, Contribution No. 425, 71 pp., illus., printed. (Reprinted from Bulletin of Marine Science of the Gulf and Caribbean, vol. 12, no. 4, December 1962, pp. 623-694.) The Institute of Marine Science, University of Miami, 1 Rickenbacker Causeway, Miami 49, Fla.

Some Relationships Between the Infauna of the Level Bottom and the Sediment in South Florida, by J. Kneeland McNulty, Robert C. Work, and Hilary B. Moore, Contribution No. 410, 11 pp., illus., printed. (Reprinted from Bulletin of Marine Science of the Gulf and Caribbean, vol. 12, no. 3, September 1962, pp. 322-332.) The Marine Laboratory, University of Miami, 1 Rickenbacker Causeway, Miami 49, Fla.

Summary of Florida Commercial Marine Landings, 1961, and an Analysis of the Catch and Effort of Certain Species, by Albert Rosen and Richard K. Robinson, 62-7, 30 pp., illus., printed. Florida State Board of Conservation, W. V. Knott Bldg., Tallahassee, Fla., 1962.

FOOD AND AGRICULTURE ORGANIZATION:
Indo-Pacific Fisheries Council Proceedings, 9th Session, Karachi, Pakistan, January 6-23, 1961, Section I,

THESE PUBLICATIONS ARE NOT AVIALABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

printed, $1. Indo-Pacific Fisheries Council, Food and Agriculture Organization of the United Nations, Maliwan Mansion, Phra Atit Rd., Bangkok, Thailand.

Report of the International Conference on Fish in Nutrition (Washington, D. C., September 19-27, 1961), FAO Fisheries Report No. 1, processed. Fisheries Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, 1962.

Report on the Meeting of an Expert Panel on Fish Meal and Fish Flour for Human Consumption (Washington, D. C., September 28-29, 1961), FAO Fisheries Report No. 4, processed. Fisheries Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, 1962.

Report of the Preparatory Meeting on the Creation of a Consultative Fisheries Body in West Africa, Dakar, Senegal, May 15-20, 1961, printed. Fisheries Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, 1962.

Requirements and Improvements of Fishery Statistics in the North Atlantic Region, edited by B. B. Parrish, FAO Fisheries Report No. 3, processed. Fisheries Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, 1962. Report based on documents of the Expert Meeting on Fishery Statistics in the North Atlantic Area, Edinburgh, Scotland, September 22-29, 1959.

Research Vessel Data, Edition I (Prepared for Research Vessel Forum, September 18-30, 1961, Tokyo, Japan), processed. Fisheries Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, 1961.

The Food and Agriculture Organization has published reports describing that Agency's activities under the Expanded Technical Assistance Program for developing the fisheries of many countries. These reports have been processed only for limited distribution to governments, libraries, and universities. Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy.

Informe al Gobierno de Chile sobre Mejoramiento de la Pesca Industrial y de la Comercializacion del Pescado (Report to the Government of Chile on Improvements of the Industrial Fishery and Commercialization of the Edible Fish Landed in Chilean Waters), by A. Fernandez y Fernandez, FAO Report No. 1208, 132 pp., illus., 1960.

FOREIGN TRADE:

Comprehensive Export Schedule (and supplementary Current Export Bulletins), printed, $6 domestic and $7.50 foreign for subscription year April 1, 1963 to March 31, 1964. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C., April 1, 1963. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) A compilation of official regulations and policies governing the export licensing of commodities and technical data.

FOSSILS:

In Prehistoric Seas, by Carroll Lane Fenton and Mildred Adams Fenton, 127 pp., illus., printed, $2.95, Doubleday and Co., 575 Madison Ave., New York 22, N. Y., 1963.

FREEZING:

"Le Developpement des Applications du Froid en France dans le Domaine de la Peche en 1962" (Developments and Application of Freezing in the French Fishing Industry in 1962), by M. Benezit, article, La Peche Maritime, vol. 42, no. 1019, February 1963, pp. 101-103, illus., printed in French, single copy 11 NF (about US$2.25). Les Editions Maritimes, 190 Boulevard Haussmann, Paris 8, France.

GEAR:

CoNetco Commercial Fishing Gear Manual, by Vincent A. Plancich, vol. 1, 29 pp., illus., printed, $2.50. Consolidated Net and Twine Co., Inc. Fishermen's Terminal, Seattle 99, Wash., 1961.

GHANA:

Report of the Fisheries Division, Ministry of Agriculture, 1960, 35 pp., printed, 5s. (about 70 U.S. cents). Government Printing Department (Publications Branch), Accra, Ghana, 1962. Covers operations and developments in Ghana's sea and fresh-water fisheries, training activities, fisheries statistics, foreign trade in fish, marketing, cold-storage facilities, market surveys, promotion campaigns, and research. Includes statistical tables showing motor fishing vessels and canoes, marine fish production, trawler catch analyses, line-fishing catch analyses, sardinella catch, fresh-water fish catch fishery products imports, and market survey results.

GILL NETS:

The Gill Net, Its Use for Catching Ground Fish, by Alexander Marcotte, 58 pp., illus., processed. (Translated from the French Cahiers d'Information, no. 12.) Station de Biologie Marine de Grande-Riviere, Ministere de la Chasse et des Pecheries, Province de Quebec, Quebec, Canada, 1962.

HONG KONG:

Hong Kong Annual Departmental Report by the Commissioner for Co-operative Development and Fisheries for the Financial Year 1960-1961, 76 pp., illus., printed, HK$3.50 (about 61 U.S. cents). Government Press, Java Road, Hong Kong, 1962.

ICHTHYOLOGY:

*Ikhtiologiia (Ichthyology), by I. I. Iudkin, R.25765, printed in Russian, 1962, (4th Edition).

INDIA:

A Assistencia Tecnica a Industria Transformadora dos Produtos da Pesca no Estado da India (Industrial and Technical Assistance Transforms the Fishery Products in the Republic of India), L. Torres, Notas Mimeografadas No. 23, 14 pp., processed in Portuguese with abstract in English, Centro de Biologia Piscatoria, Lisbon, Portugal, 1961.

JAPAN:

Annual Report of Catch Statistics on Fishery and Aquiculture, 1961, Agriculture Forestry and Fishery Statistics Bulletin 37-45, 384 pp., illus., printed in Japanese and English. Statistics and Survey Division,

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

Ministry of Agriculture and Forestry, Tokyo, Japan, November 1962. Contains statistical data on the 1961 production of marine fisheries--whaling, pelagic fishing on the high seas, and domestic marine fisheries; culture in shallow seas; inland water fisheries; and culture in inland waters.

LAKE ERIE:

Commercial Fisheries Catch Summary for Lake Erie, Ohio, in 1962, W-200, illus., printed. Division of Wildlife, Department of Natural Resources, 1500 Dublin Rd., Columbus, Ohio, 1962.

Summary of the Ohio Lake Erie Commercial Fisheries as Compiled from Their Catch Records by Wildlife District One, Sandusky, Ohio, 10 pp., processed. Ohio Department of Natural Resources, Division of Wildlife, 1500 Dublin Rd., Columbus, Ohio, 1959.

MAINE:

Maine Open Water Fishing Laws, 1961-1962, Summary, 30 pp., printed. Department of Inland Fisheries and Game, Augusta, Maine.

MARINE SHELLS:

"Cone Shells Can Be Killers," by Rob Wright, article, South Pacific Bulletin, vol. 13, no. 1, January 1963, pp. 24-27, illus., printed, single copy 30 cents. South Pacific Commission, Box 5254, G. P. O., Sydney, Australia. Certain species of cone shells commonly gathered on reefs throughout the Pacific for food and for shell collections can bring paralysis and even death to the unwary. Six of the most lethal of these cone shells are described.

MISCELLANEOUS:

The following reports (for limited distribution to governments, libraries, and universities) were published by the International Labour Organisation, Geneva, Switzerland, 1962.

Committee on Conditions of Work in the Fishing Industry, 1962. Report I--Accommodation on Board Fishing Vessels, CCF/1/1., 72 pp.

_____. Report II--Safety on Board Fishing Vessels, CCF/1/2., 37 pp.

_____. Report III--Accident Insurance and Employment Injury Benefits, CCF/1/3., 65 pp.

_____. Report IV--Vocational Training and Certificates of Competency. Part I--Vocational Training, CCF/1/4(a)., 142 pp.; and Part II--Certificates of Competency, CCF/1/4(b)., 25 pp.

NEW ZEALAND:

A Bibliography of the Freshwater Fishes of New Zealand, by Diana Bassett, Bibliographic Series No. 5, 50 pp., printed. Wellington Library School, National Library Service, Wellington, New Zealand, 1961.

NORWAY:

"Fisheries--an Age-Old, Modern Industry," article, Norway Exports, Spring 1963, pp. 45-48, illus., printed. Export Council of Norway, H. Heyerdahls Gate 1, Oslo, Norway.

OCEANOGRAPHY:

Exploring the Secrets of the Sea, by William J. Cromie, 300 pp., illus., printed, $5.95. Prentice-Hall, Englewood Cliffs, N. J., 1962.

Fisheries Oceanography, by D. H. Cushing, FAO Fisheries Biology Technical Paper No. 24, 13 pp., processed, distribution restricted. Fisheries Division, Biology Branch, Food and Agriculture Organization of the United Nations, Rome, Italy, June 1962.

"Measuring Tidal Changes in Mid-Ocean," article, New Scientist, vol. 17, no. 325, February 7, 1963, p. 305, printed, single copy 1s. (about 15 U.S. cents). Cromwell House, Fulwood Place, High Holborn, London WC1, England.

"Oceanographic Research in the South Pacific," by Michel Legand, article, South Pacific Bulletin, vol. 13, no. 1, January 1963, pp. 28-30, 71, illus., printed, single copy 30 cents. South Pacific Commission, Box 5254, G.P.O., Sydney, Australia. A brief review of the oceanographic research being conducted in the South Pacific by the French Institute of Oceania and future plans.

A Partial Bibliography of the Indian Ocean, by Anne E. Yentsch and others, Contribution No. 1286, 398 pp., printed. Woods Hole Oceanographic Institution, Woods Hole, Mass., 1962.

Pioneer Oceanographer: Alexander Agassiz, by Beryl Williams and Samuel Epstein, 191 pp., printed, $3.25. Julian Messner, Inc., 8 West 40th St., New York 18, N. Y., 1963.

Preparation of Regional Fisheries Oceanographic Synopses, FAO Fisheries Biology Synopsis No. 5, 17 pp., processed, distribution restricted. Fisheries Division, Biology Branch, Food and Agriculture Organization of the United Nations, Rome, Italy, June 1962.

A Report of Data Obtained in Florida Straits and off The West Coast of Florida, January-June 1962, 62-11, 141 pp., illus., processed. Marine Laboratory, Institute of Marine Science, 1 Rickenbacker Causeway, Miami 49, Fla.

The Sea (Ideas and Observations on Progress in the Study of the Seas). Vol. I--Physical Oceanography, 879 pp., illus., printed. Interscience Publishers, John Wiley and Sons, Inc., New York, N. Y., 1962. The first of three volumes reviewing the achievements of the past twenty years in understanding the physical, chemical, and geological processes in and below the oceans. This first volume covers the major fields of physical oceanography and illustrates the vast expansion which has taken place in these subjects. Articles by thirty-three contributors cover the physical properties and equations of motion of sea-water, small-scale and large-scale interactions between the sea and the atmosphere, dynamics of currents, transmission of sound, light and other electromagnetic radiation, various types of wave motion, and turbulence. Wave motions are reviewed in articles on ripples, statistics and dynamics of waves, microseisms, internal waves, long waves, tides, surges and long-term variations in sea-level.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

OYSTERS:

The Concentrations of Some Enzymes of the Citric Acid Cycle and Electron Transport System in the Large Granule Fraction of Eggs and Trochophores of the Oyster, CRASSOSTREA VIRGINICA, by Robert E. Black, Contribution No. 117, 9 pp., printed. (Reprinted from Biological Bulletin, vol. 123, no. 1, August 1962, pp. 71-79.) Department of Biology and Virginia Institute of Marine Science, College of William and Mary, Williamsburg, Va.

Mortality of Intertidal and Subtidal Oysters in Alligator Harbor, Florida, by F. E. Nichy and R. W. Menzel, Contribution No. 176, 9 pp., illus., processed. (Reprinted from Proceedings of the National Shellfisheries Association, vol. 51, 1960, pp. 33-41.) Oceanographic Institute, Florida State University, Tallahassee, Fla.

Natural Setting of Pacific Oysters in Washington Waters in 1958, by Charles E. Woelke, 6 pp., processed. State of Washington, Department of Fisheries, Shellfish Laboratory, Quilcene, Wash., November 12, 1959.

Our Friend the Oyster, by Thurlow C. Nelson, 11 pp., illus., printed. New Jersey Department of Conservation & Economic Development, Division of Shell Fisheries, Trenton 25, N. J. A brief description of underwater oyster farming, securing seed oysters, Delaware Bay oyster industry, enemies of oysters, and value of the New Jersey oyster industry.

"Oysters Through the Ages," by A. V. Friedrichs, Jr., article, Louisiana Conservationist, vol. 14, nos. 11 and 12, November-December 1962, pp. 21-23, illus., printed. Louisiana Wild Life and Fisheries Commission, Wild Life and Fisheries Bldg., 400 Royal St., New Orleans 16, La. Discusses the history of the oyster from earliest times. "Though the Romans were the first to cultivate oysters, the English were the first to create new oyster beds, on which the oysters reproduced themselves. Rowlands (1720) reported that beds in the River Meme furnished an abundance of oysters notwithstanding that none had existed in that locality 24 years previously. The growth was started by planting," according to the author.

PACKAGING:

"Packaging Air Shipments of Fresh Fish," by F. G. Claggett, article, Progress Reports of the Pacific Coast Stations, no. 114, June 1962, pp. 3-5, printed. Fisheries Research Board of Canada, 6640 NW. Marine Drive, Vancouver 8, Canada.

PAKISTAN:

"Biochemical and Nutritional Studies on East Pakistan Fish. III--Mechanism of Fish Spoilage by Study of the Influence of Visceral Contents and Boiling Treatment on the Autodehydrogenase Activity of Fish Tissues," by M. Qudrat-i-Khuda, H. N. De, and N. M. Khan (Pakistan Council of Scientific and Industrial Research, Dacca, Pakistan), article, Chemical Abstracts, vol. 57, July 9, 1962, 1335d, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C.

Preliminary Bibliography of Fish and Fisheries in Pakistan, IPFC Occasional Paper 62/2, printed. Indo-Pacific Fisheries Council, Food and Agriculture Organization of the United Nations, Maliwan Mansion, Phra Atit Rd., Bangkok, Thailand, 1962.

PARASITES:

CRYPTOBIA SALMOSITICA, A Hemoflagellate Parasite of Coho Salmon, by Max Katz and Clarence C. Becker, Contribution No. 120, 3 pp., processed. (Reprinted from Eleventh Annual Northwest Fish Cultural Conference, Olympia, Wash., pp. 38-40, December 6-7, 1960.) College of Fisheries, University of Washington, Seattle 5, Wash.

A Provisional List of Experts Concerned with Diseases of Aquatic Organisms and Associated Parasites, FB/T11, processed. Fisheries Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, 1961.

A Technique of Counting the Flagellate, CRYPTOBIA SALMOSITICA, in the Blood of Coho Salmon, by Max Katz, R. C. Simon, and C. D. Becker, Contribution No. 125, 2 pp., printed. (Reprinted from The Journal of Parasitology, vol. 47, no. 6, December 1961, pp. 941-942.) Fisheries Research Institute and College of Fisheries, University of Washington, Seattle 5, Wash.

PERU:

Import Tariff System of Peru, OBR-63-19, 4 pp., printed, 15 cents. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C., January 1963. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) Presents information on units of currency, weights, and measures; bases of specific and ad valorem duties; customs surtaxes; additional duties and surcharges; method of payment of duty; preferential duties; sales and other internal taxes; consular documents and fees; and trade restrictions.

PESTICIDES:

"Damage to Fish Caused by Pesticidal Preparations," by M. A. Truelle, article, Water Pollution Abstracts, vol. 35, no. 4, 1962, abstract no. 786, printed. Her Majesty's Stationery Office, Atlantic House, Holborn Viaduct, London EC4, England.

PHILIPPINES:

Preliminary Bibliography of Fish and Fisheries in the Republic of the Philippines, IPFC Occasional Papers 62/3, printed. Indo-Pacific Fisheries Council, Food and Agriculture Organization of the United Nations, Maliwan Mansion, Phra Atit Rd., Bangkok, Thailand, 1962.

Status and Progress of Chanos Fishery in the Philippines, IPFC Occasional Paper 61/8, printed. Indo-Pacific Fisheries Council, Food and Agriculture Organization of the United Nations, Maliwan Mansion, Phra Atit Rd., Bangkok, Thailand, 1961.

PLAICE:

"A Predator-Prey Size Relationship for Plaice Larvae Feeding on Oikopleura," by J. E. Shelbourne, article, Journal of the Marine Biological Association of the United Kingdom, vol. 42, no. 2, 1962, pp. 243-252, printed. Marine Biological Association of the United Kingdom, Cambridge University Press, 200 Euston Road, London NW1, England.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

PLANKTON:

"The Distribution of the Zooplankton in the Black Sea during 1951-1956," by T. S. Petipa, L. I. Sazhina, and E. P. Delalo, article, Okeanologiia, vol. 3, no. 1, January 1963, pp. 110-122, printed in Russian. Akademiia Nauk SSSR, Moscow, U.S.S.R.

"Estudio del Fitoplancton del Golfo de Cadiz en Relacion con el Regimen Regional de Vientos" (Study of Phytoplankton of the Gulf of Cadiz in Relation to the Regional Prevailing Winds), by Felipe Munoz Sardon, article, Investigacion Pesquera, vol. 21, August 1962, pp. 165-188, illus., printed in Spanish with English abstract. Instituto de Investigaciones Pesqueras, Paseo Nacional, s/n, Barcelona-3, Spain.

Gear Data Report from Atlantic Plankton Cruises for the R/V PATHFINDER, March 1961-March 1962, by Woodrow L. Wilson, Special Scientific Report No. 32, 20 pp., processed. Virginia Institute of Marine Science, Gloucester Point, Va., 1962.

The Information Concept in Ecology: Some Aspects of Information-Gathering Behavior in Plankton, by Bernard C. Patten, Contribution No. 120, 33 pp., illus., printed. (Reprinted from Information Storage and Neural Control, pp. 1-33.) The Virginia Institute of Marine Science, Gloucester Point, Va., 1963.

"An Interval Plankton Sampler for Use in Ponds," by Timothy G. Marples, article Ecology, vol. 43, no. 2, 1962, pp. 323-324, printed. Ecological Society of America, Duke University Press, Box 6697, College Station, Durham, N. C.

Plankton of the Florida Current. Part VIII--A List of the Copepoda, by Harding B. Owre, Contribution No. 415, 7 pp., illus., printed. (Reprinted from Bulletin of Marine Science of the Gulf and Caribbean, vol. 12, no. 3, September 1962, pp. 489-495.) The Marine Laboratory, University of Miami, 1 Rickenbacker Causeway, Miami 49, Fla.

Plankton Studies in Manila Bay; Standardization of Plankton Nets and Plankton Volumes, IPFC Occasional Paper 61/7, printed. Indo-Pacific Fisheries Council, Food and Agriculture Organization of the United Nations, Maliwan Mansion, Phra Atit Rd., Bangkok, Thailand, 1962.

POLLUTION:

International Conference on Prevention of Pollution of the Sea by Oil, 1962, printed in French and English, 8s. 6d. (about US$1.19). IMCO Secretariat, Documents Section, Chancery House, Chancery Lane, London WC2, England, 1963.

"Pollution in Coastal Waters of British Columbia," by Michael Waldichuk, article, Progress Reports of the Pacific Coast Stations, no. 114, pp. 13-18, printed. Fisheries Research Board of Canada, Biological Station, Nanaimo, B.C., Canada, 1962.

PREDATORS:

"The Effects of Underwater Explosions for the Purpose of Killing Predacious Fishes," by Toshiro Kuroki and Kazumi Kumanda, article, Bulletin of the Faculty of Fisheries, Hokkaido University, vol. 12, no. 1, 1961, pp. 16-32, printed in Japanese with English abstracts. Hokkaido University, Kameda-Machi, Hakodate, Japan.

PRESERVATION:

"The Preservation of Fish at Sea," by G. C. Eddie, article, Recent Advances in Food Science, pp. 170-184, printed. University of Glasgow, Glasgow, Scotland, 1962.

PRESERVATIVES:

"Propionic Acid as a Preservative for Cured Fish Products," by A. P. Valsan, M. R. Nair, and S. V. S. Rao, article, Journal of Scientific and Industrial Research, vol. 20D, 1961, pp. 351-354, printed. Council of Scientific and Industrial Research, Old Mill Rd., New Delhi 2, India.

PROTEINS:

"The Electrophoretic Characteristics of Albacore, Bluefin Tuna, and Kelp Bass Eye Lens Proteins," by Albert C. Smith, article, California Fish and Game, vol. 48, July 1962, pp. 199-201, printed. California Department of Fish and Game, Printing Division, Documents Section, Sacramento 14, Calif.

QUALITY:

*Organolepticheskii Metod v Otsenke Kachestva Ryby i Ryboproduktov (Organoleptic Method in Determining Quality of Fish and Fishery Products), by B. P. Nikitin, R 26038, printed in Russian. Moscow, U.S.S.R., 1962.

"Problems and Progress in Retaining Fish Quality by Refrigeration," by C. L. Cutting, article, Modern Refrigeration, vol. 65, no. 770, May 1962, pp. 448-451, printed. Refrigeration Press Ltd., Maclaren House, Great Suffolk St., London SE1, England.

RADIOACTIVITY:

**Hygienic Evaluation of Radioactive Iodine Accumulation in Fresh-Water Fish (Yearling Carps), by A. Ya. Loshak, Trans. A-1365, 7 pp., processed. (Translated from the Russian, Gigiena i Sanitariya, vol. 27, no. 6, June 1962, pp. 93-95.)

"The Radioactivity of Some Bottom Organisms in the Norwegian Sea," by A. F. Fedorov and V. P. Kilezhenko, article, Okeanologiia, vol. 3, no. 1, January 1963, pp. 123-126, printed in Russian. Akademiia Nauk SSSR, Moscow, U.S.S.R.

Synopsis of Information on Radioactive Elements in Sea Water and in the Marine Food Chain, FB/S20, processed. Fisheries Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, 1961.

RADIOISOTOPES:

Radioisotopes in Radiation Processed Foods (Report for September 16, 1961-March 15, 1962), by George R. Meneely, 22 pp., printed. Vanderbilt University, School of Medicine, Nashville, Tenn., March 1962.

The Role of Metabolism of Fish in the Accumulation of Radioisotopes by Them, by M. M. Telitchenko, JPRS No. 15,871, 8 pp., processed, $1.10. (Translated from the Russian, Nauchnyye Doklady Vysshey Shkoly, Biologicheskiye Nauki, no. 3, 1962, pp. 90-93.) Joint Publications Research Service, Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C., October 24, 1962.

"Use of Radioisotopes in Hydrobiology and Fish Culture," by F. F. Hooper and H. A. Podoliak (Michigan

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

Dept. of Conservation, Ann Arbor Mich.), article, Chemical Abstracts, vol. 56, January 22, 1962, 1852g, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C.

RHODESIA AND NYASALAND FEDERATION:
Licensing and Exchange Controls of the Federation of Rhodesia and Nyasaland, OBR-63-12, 8 pp., printed, 15 cents. Bureau of International Commerce, U. S. Department of Commerce, Washington, D. C., January 1963. (For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D. C.) Discusses the import and export controls of the Federation, and United States import and export controls.

RWANDA REPUBLIC AND KINGDOM OF BURUNDI:
Import Tariff System of the Republic of Rwanda and the Kingdom of Burundi, OBR-63-17, 2 pp., printed, 15 cents. Bureau of International Commerce, U.S. Department of Commerce, Washington, D. C., January 1963. (For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D. C.) Presents information on units of currency, weights, and measures; bases of specific and ad valorem duties; methods of payment of duty; internal taxes; shipping documents and fees; and trade restrictions.

SALMON:
Differences in Scale Characteristics of Far Eastern and Alaskan Chum Salmon (ONCORHYNCHUS KETA Walbaum), by Donald E. Bevan, Contribution No. 101, 1 p., processed. (Translation abstract of article from the Russian, Problems of Ichthyology, vol. 1, no. 1, 1961, pp. 29-38.) College of Fisheries, University of Washington, Seattle 5, Wash., 1962.

"Exploratory Fishing of Salmon with Gill Nets of Various Mesh Sizes and with a Trammel Net in Aleutian Waters 1957," by Takeji Fujii and others, article, Bulletin of the Faculty of Fisheries, Hokkaido University, vol. 12, no. 2, 1961, pp. 129-137, printed in Japanese with English abstracts. Hokkaido University, Kameda-Machi, Hakodate, Japan.

Forecast of Chignik River Red Salmon Run in 1963, by David W. Narver and Thomas H. Richardson, Informational Leaflet No. 24, 4 pp., illus., processed. Alaska Department of Fish and Game, Commercial Fisheries Division, Juneau, Alaska, March 20, 1963. The method of prediction is based upon age composition of the adult run in 1962 and historical age and return relationships since 1955. The report discusses the Chignik River total runs, the Stepovak Bay and Cape Kumlik catches, and mathematical probabilities of red salmon returns in 1963. The actual forecast for this year is 1,348,000 fish.

"Long-Distance Migration of Salmon," by A. Swain and W. G. Hartley, article, Nature, vol. 195, no. 4846, 1962, p. 1122, printed, 3s. (about 42 U.S. cents). St. Martin's Press, 175 Fifth Ave., New York 10, N. Y.

"Prichiny Kolebanii Chislennosti Krasnoi R. Ozernoi (The Causes of Fluctuations in the Numbers of Oncorhynchus nerka in the Ozernaya River)," by T. V. Egorova and others, article, Voprosy Ikhtiologii, vol. 1, no. 3, 1961, pp. 439-447, printed in Russian. Akademiia Nauk, SSSR, Ikhliologicheshaia Komissaia, Moscow, U.S.S.R.

SALT FISH:
"De Spanske Saltvannsfiskerier" (The Spanish Salt-Fish Industry), by B. Lovas-Svendsen, article, Tidsskrift for Hermetikindustri, vol. 49, no. 2, February 1963, pp. 63-64, illus., printed in Norwegian. Norske Hermetikfabrikers Landsforening, Stavanger, Norway.

SAMPLING METHODS:
Manual of Sampling Methods for Fisheries Biology, by J. A. Gulland, FB/T26, 75 pp., processed. Biology Branch, Fisheries Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, October 1962.

SANITATION:
"Detection and Enumeration of Fecal Indicator Organisms in Frozen Sea Foods. I--Escherichia coli," by H. Raj and J. Liston, article, Applied Microbiology, vol. 9, no. 2, March 1961, pp. 171-174, printed. Williams and Wilkins Co., 428 East Preston St., Baltimore 2, Md.

"Problems of Hygienic Researches in the Fisheries of the Far East," by L. P. Klyga, article, Report on Soviet Medical Work, JPRS No. 15,215, pp. 30-36, processed, $8.60. (Translated from the Russian, Byulleten' Uchenogo Meditsinskogo Soveta, vol. 13, no. 3, May/June 1962.) Joint Publications Research Service, Office of Technical Services, U.S. Department of Commerce, Bldg. T-30, Ohio Drive and Independence Ave. SW., Washington 25, D. C., September 11, 1962.

SARDINES:
"The Canadian Sardine Industry," by E. B. Dewberry, article, Food Processing and Packaging, vol. 30, no. 362, 1961, pp. 405-409, printed. Tothill Press Ltd., 33 Tothill St., London SW1, England.

"La Crisis Mundial de la Pesqueria de Sardina" (The World Crisis in the Sardine Fishery), Parts I and II, by B. Andreu, articles, Industrias Pesqueras, vol. 37, no. 857, January 1, 1963, pp. 2-3; and vol. 37, no. 858, January 15, 1963, pp. 25-26, respectively, illus., printed in Spanish, single copy 35 ptas. (about 60 U.S. cents). Industrias Pesqueras, Policarpo Sanz, 21-2°, Vigo, Spain.

"Estudio de la Edad y Crecimiento de la Sardina (Sardina pilchardus Walb.) del NW de Espana" (Study of the Age and Growth of the Sardine--Sardina pilchardus Walb.--of Northwest Spain), and "Sobre la Relacion Longitud Pez-Longitud Escama y su Disarmonia Ciclica Estacional, en la Sardina (Sardina pilchardus Walb.) del NW de Espana" (On the Body Length-Scale Length Relationship and Seasonal Variation in the Sardine--Sardina pilchardus Walb.--of Northwest Spain), by B. Andreu and M. L. Fuster de Plaza, articles, Investigacion Pesquera, vol. 21, August 1962, pp. 49-95 and 113-144, illus., printed in Spanish with English abstracts. Instituto de Investigaciones Pesqueras, Paseo Nacional, s/n, Barcelona-3, Spain.

"The Moroccan Pilchard Fishery," by H. Aloncle, article, Fishing News International, vol. 2, no. 1, January-March 1963, pp. 44-46, illus., printed, single copy 6s. 6d. (about 91 U.S. cents). Arthur J. Heighway Publications Ltd., Ludgate House, 110 Fleet St., London EC4, England.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

SCALES:
"A Propos des Pigments Bleu Vert Dans les Ecailles de Certains Poissons" (Concerning Blue Green Pigments in the Scales of Certain Fish), by Tadasi Nomura and Yasuhiko Tsuchiya, article, The Tohoku Journal of Agricultural Research, vol. 13, no. 1, April 1962, pp. 49-53, illus., printed. Faculty of Agriculture, Tohoku University, Sendai, Japan.

SCIENCE:
National Science Foundation, 12th Annual Report, 1962, 368 pp., illus., printed, $1.50. National Science Foundation, Washington, D. C., 1963. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) This report on the activities of the National Science Foundation for the fiscal year ended June 30, 1962, contains information on the support of scientific research and institutional grants; gives a photographic sampling of Foundation-supported activities; and discusses education in the sciences, dissemination of scientific information, science resources planning, assessing the national research and development effort, the developing role of the National Science Foundation in international science, and other related material.

SEA LAMPREY:
"Sea Lamprey Larvae in Ogontz Bay and Ogontz River, Michigan," by Martin J. Hansen, article, The Journal of Wildlife Management, vol. 26, no. 3, 1962, pp. 237-247, printed. Wildlife Society, 2000 P. St. NW., Washington, D. C.

SEA TROUT:
Subpopulations Based on Growth and Tagging Studies of Spotted Seatrout, Cynoscion Nebulosus, in Florida, by E. S. Iversen and D. C. Tabb, Contribution No. 399, 5 pp., illus., printed. (Reprinted from Copeia, no. 3, September 28, 1962, pp. 544-548.) The Marine Laboratory, University of Miami, 1 Rickenbacker Causeway, Miami 49, Fla.

SEAWEEDS:
"Extra-Mural Research: Algal Chemistry- Algal Polysaccharides," article, 1959 Annual Report of the Institute of Seaweed Research, pp. 12-13, printed. Institute of Seaweed Research, Inveresk, Midlothian, Scotland, 1960.

SHARKS AND RAYS:
Sharks and Rays of Virginia's Seaside Bays, by H. Dickson Hoese, Contribution No. 118, 7 pp., printed. (Reprinted from Chesapeake Science, vol. 3, no. 3, September 1962, pp. 166-172.) The Virginia Institute of Marine Science, Gloucester Point, Va., 1962.

SHELLFISH CULTURE:
The Effects of Spent Sulphite Waste Liquor on the Development of Eggs, and Larvae of Two Marine Mollusks and Three of Their Food Organisms, by Charles E. Woelke, 18 pp., processed. State of Washington Department of Fisheries, Seattle, Wash., 1958.

SHRIMP:
Biological Data on Pink Shrimp, PENAEUS DUORARUM, of North Florida Bay and Adjacent Estuaries in Monroe County, Florida, September 1957-March 1962, by Durbin C. Tabb and David L. Dubrow, 62-8, 89 pp., illus., printed. Florida State Board of Conservation, W. V. Knott Bldg., Tallahassee, Fla., 1962.

"Expanding Tropical Prawn Fisheries," by C. F. Hickling, article, Fishing News International, vol. 2, no. 1, January-March 1963, pp. 37-39, illus., printed, single copy 6s. 6d. (about 91 U. S. cents). Arthur J. Heighway Publications Ltd., Ludgate House, 110 Fleet St., London EC4, England.

Some Aspects of Prawn Drying in Kerala, IPFC Occasional Paper 61/3, printed. Indo-Pacific Fisheries Council, Food and Agriculture Organization of the United Nations, Maliwan Mansion, Phra Atit Rd., Bangkok, Thailand, 1961.

SHRIMP FARMING:
Control of Predaceous Fishes in Shrimp Farming in South Carolina, by G. Robert Lunz and Charles M. Bearden, Contributions from Bears Bluff Laboratories No. 36, 7 pp., printed. Bears Bluff Laboratories, Wadmalaw Island, S. C., January 1963.

SINGAPORE:
State of Singapore, Annual Report 1960, 344 pp., illus., printed, S$3 (about US$1). Government Publications Bureau, The General Post Office, Fullerton Bldg., Singapore, 1962. This annual review of accomplishments of the Government of Singapore includes, among others, a section on work of the Fisheries Division. Discusses the inshore and offshore fisheries; number of fishermen, vessels, and gear; fresh fish marketing system; and Singapore's function as a center for import and distribution of salt fish. Also discusses assistance to fishermen and fisheries training courses.

SMALL BUSINESS MANAGEMENT:
"Outside Management Counsel for Small Business," by Janet M. Pomeranz and Leonard W. Prestwich, Management Research Summary, 4 pp., processed. Small Business Administration, Washington 25, D. C. The purpose of the study reported in this summary was to explore the relation between the management problems of very small businesses and the business counsel available from management service agencies. These agencies include trade associations, community development organizations, Government field offices, management consultants, attorneys, banks, and accountants. In the study, small business needs for management assistance are analyzed in terms of (1) the requests for assistance received by the management service agencies from small businesses, (2) the problems met by small businessmen in running their operations, and (3) the adequacy of present sources of management assistance and the extent to which they are used by small businessmen.

SMOKING:
"Investigation of the Properties of Smoke Generated for Curing Fish," by V. A. Solinek, article, Israel Program for Scientific Translations, PST Cat. No. 109, pp. 81-94, processed. Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C., 1960.

SOUTH AFRICA REPUBLIC:
Fisheries Development Corporation of South Africa Limited--Eighteenth Annual Report (Covering Period 1st October, 1961, to 30th September, 1962), 16 pp., printed in Afrikaans and English. Fisheries Development Corporation of South Africa Ltd., Seafare House, 68 Orange St., Cape Town, South Africa Republic,

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

March 1963. Presents brief reports on the state of the pilchard, maasbanker, mackerel, and spiny lobster fisheries; and activities of the Corporation.

SOUTH CAROLINA:
Annual Report 1961-1962, Contributions from Bears Bluff Laboratories No. 37, 11 pp., printed. (Reprinted from Report of South Carolina Wildlife Resources Department, Fiscal Year July 1, 1961-June 30, 1962.) Bears Bluff Laboratories, Wadmalaw Island, S. C., January 1963. A detailed description of the activities of Bears Bluff Laboratories for the period under review, covering the study of oyster, shrimp, blue crabs, finfish, and pond cultivation.

SPAIN:
"Estudio sobre la Flota Pesquera Espanola" (Study of the Spanish Fishing Fleet), article, Boletin de Informacion del Sindicato Nacional de la Pesca, no. 53, February 1963, pp. 9-12, printed in Spanish. Sindicato Nacional de la Pesca, Paseo del Prado, 18-20, 6ª Planta, Madrid, Spain.

"Las Pesquerias de Merluza Capensis y de la Longosta de Roca" (Stockfish and Spiny Lobster Fisheries of South Africa), by Albert C. Jensen, article, Industrias Pesqueras, vol. 37, no. 859, February 1, 1963, p. 48, illus., printed in Spanish, single copy 35 ptas. (about 60 U. S. cents). Industrias Pesqueras, Policarpo Sanz, 21-2°, Vigo, Spain.

SPERM OIL:
"Sperm Oil Reports 1962/1963, Pelagic Operations," article, Norsk Hvalfangst-Tidende (The Norwegian Whaling Gazette), vol. 52, no. 1, January 1963, pp. 1-2, printed in Norwegian and English. Hvalfangerforeningen, Sandefjord, Norway.

SPERM WHALES:
"Features of the Molecular Structure of Sperm-Whale Myoglobin," by Allen B. Edmundson (Rockefeller Inst., New York City, N. Y.), article, Chemical Abstracts, vol. 57, July 9, 1962, 1239d, printed. The American Chemical Society, 1155 16th St. NW., Washington, D. C.

"Reactivity of Sperm Whale Metmyoglobin Towards Hydrogen Ions and p-Nitrophenyl Acetate," by Esther Breslow and Frank R. N. Gurd, article, Journal of Biological Chemistry, vol. 237, February 1962, pp. 371-381, printed. American Society of Biological Chemists, 428 E. Preston St., Baltimore 2, Md.

SPINY LOBSTER:
"Les Langoustiers Francais au Large des Cotes Bersiliennes" (French Spiny Lobster Fishing Vessels Off Brazil's Coast), by R. Lagarde, article, La Peche Maritime, vol. 42, no. 1019, February 1963, pp. 87-91, illus., printed in French, single copy 11NF (about US$2.25). Les Editions Maritimes, 190 Boulevard Haussmann, Paris 8, France.

"La Peche a la Langouste Brune au Large du Littoral Bresilien" (The Brown Spiny Lobster Fishery Off the Brazilian Coast), by A. Rousseng, article, La Peche Maritime, vol. 42, no. 1018, January 1963, pp. 17-21, illus., printed in French, single copy 11NF (about US$2.25). Les Editions Maritimes, 190 Boulevard Haussmann, Paris 8, France.

On the Possible Caribbean Origin of Florida's Spiny Lobster Populations, by Robert M. Ingle and others, Technical Series No. 40, 15 pp., illus., printed. The Florida State Board of Conservation, Marine Laboratory, Maritime Base, Bayboro Harbor, St. Petersburg, Fla., January 1963. Covers the preliminary evidence resulting from an investigation of the possible relationship of Caribbean water currents to recruitment of larval spiny lobsters to Florida.

"Stewart Island Fishermen See Regulations as Threat to Crayfishing Industry," article, Commercial Fishing, vol. 1, no. 2, October 1962, p. 6, printed. Trade Publications Ltd., 47 Lewis Eady Bldg., 192 Queen St., Auckland, New Zealand.

SPORT FISHING:
"Estimating Marine Sport Fishermen," by S. Russell, article, Biometrics, vol. 18, no. 2, 1962, p. 255, printed. Department of Statistics, Virginia Polytechnic Institute, Blacksburg, Va.

SQUID:
ASCOCRANCHIA JOUBINI, a new Genus and Species of Cranchiid Squid from the North Atlantic, by Gilbert L. Voss, Contribution No. 380, 6 pp., illus., printed. (Reprinted from the Bulletin of The Institute of Oceanography, Monaco, no. 1242, August 1962.) The Marine Laboratory, University of Miami 1. Rickenbacker Causeway, Miami 49, Fla.

"Blackfisken" (Squid), by Bent J. Muus, article, Svenska Vastkustfiskaren, vol. 32, no. 18, September 25, 1962, pp. 404-405, illus., printed in Swedish. Svenska Vastkustfiskarnas Centralforbund, Goteborg, Sweden.

STATISTICS:
"Compiling International Fisheries Statistics," by L. P. D. Gertenbach, article, Fishing News International, vol. 2, no. 1, January-March 1963, pp. 23-27, illus., printed, single copy 6s. 6d. (about 91 U. S. cents). Arthur J. Heighway, Publications Ltd., Ludgate House, 110 Fleet St., London EC4, England.

STERN TRAWLERS:
"Diesel Electric Power in a Stern Freezer-Trawler," by N. P. Blackburn, article, Fishing News International, vol. 2, no. 1, January-March 1963, pp. 49-51, illus., printed, single copy 6s. 6d. (about 91 U. S. cents). Authur J. Heighway, Publications Ltd., Ludgate House, 110 Fleet St., London EC4, England.

"Transom Stern Trawlers," article, Shipbuilding and Shipping Record, vol. 96, no. 20, 1960, p. 642, illus., printed. Tothill Press Ltd., 33 Tothill Rd., Westminster, London SW1, England.

ST. PIERRE AND MIQUELON:
"La Campagne du Thalassa dans l'Atlantique Nord-Ouest et le Port Saint-Pierre-et-Miquelon" (The Cruise of the Thalassa in the Northwest Atlantic and the Port of St. Pierre and Miquelon), article, La Peche Maritime, vol. 42, no. 1018, January 1963, pp. 26-28, illus., printed in French, single copy 11NF (about US$2.25). La Peche Maritime, 190 Boulevard Haussmann, Paris, France.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

SYRIA:

The Freshwater Fishes of Syria and Their General Biology and Management, by William C. Beckman, FB/T8, processed, distribution restricted. Biology Branch, Fisheries Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, 1962.

TAIWAN:

Taiwan Fisheries Yearbook, 1962 Edition, 201 pp., illus., printed in Chinese and English. Taiwan Fisheries Bureau, Department of Agriculture and Forestry, Provincial Government of Taiwan, Taipei, Taiwan, August 1962. Contains statistical tables on fishermen's organizations and membership, number of fishing vessels, status of ice-making and cold-storage industries, fisheries production in quantity and value, and quantity of supply and sale of fishery products and their average value at principal fish markets. Also includes data on processed marine products, fish culture, production of fish fries, number of casualties of fishermen, losses and damages to fishing crafts, fishing activity at principal harbors, and marine products trade. Most data are for 1961.

TENNESSEE VALLEY:

Development of Forests-Fish-Wildlife in the Tennessee Valley, 1962, 44 pp., illus., processed. Division of Forestry Development, Tennessee Valley Authority, Norris, Tenn., 1962. A progress report for fiscal year 1962 covering TVA activities in the field of forest, fish, and wildlife development. It also presents, by major activities, goals for the next five years. A statistical appendix summarizes progress to date. The Tennessee River system, developed for flood control and power production has yielded abundant fish and wildlife benefits over the years to an ever-increasing number of hunters and fishermen. These resources also have a considerable economic value and can add much to the general welfare of the region. The commercial harvest of fish and mussels in TVA reservoirs, now valued at $4.2 million, is expected to increase to $18.5 million by the end of the century. Employment of commercial fishermen should increase from 1,700 to 3,100 man-years, according to the report.

THAILAND:

Establishing a Business in Thailand, OBR-63-27, 12 pp., printed 15 cents. Bureau of International Commerce, U.S. Department of Commerce, Washington D.C., January 1963. (For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C.) Summarizes the relevant Thai policies and regulations in the fields of investment, business operation, land ownership, employment, taxation, exchange controls, Government monopolies, and other matters affecting the establishment and operation of business enterprises by non-Thai nationals. Important United States Government services directed toward aiding the American investor in a foreign country are also included.

Fisheries Statistics of Thailand, IPFC Occasional Papers 61/10, printed. Indo-Pacific Fisheries Council, Food and Agriculture Organization of the United Nations, Maliwan Mansion, Phra Atit Rd., Bangkok, Thailand, 1961.

The Rastrelliger Fishery Research Program in Thailand, IPFC Occasional Paper 61/1, printed. Indo-Pacific Fisheries Council, Food and Agriculture Organization of the United Nations, Maliwan Mansion, Phra Atit Rd., Bangkok, Thailand, 1961.

THAWING:

"Dielectric Thawing of Fish," by H. R. Sanders, article, Torry Research Report, no. 4, 2 pp., printed. Torry Research Station, Aberdeen, Scotland, 1962.

TRAWLERS:

"Un Chalut Pelagique, a un 'Seul' Bateau pour la Peche Industrielle" (A Pelagic Trawler--a "Single" Vessel for the Commercial Fishery), by C. Nedelec, article, France Peche, no. 70, February 1963, pp. 25-29, illus., printed in French. France Peche, Boite Postale 179, Lorient, France.

"Florida Firm Believed to be Largest Shrimp Trawler Builder," by Hank Drane, article, International Commerce, vol. 68, no. 23, November 19, 1962, pp. 5-6, illus., printed, single copy 35 cents. Bureau of International Commerce, U.S. Department of Commerce, Washington, D.C. (For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C.) A shipyard in St. Augustine, Fla., expected to launch its 1,000th ship in May 1963. Many were built for the export trade, according to the author.

"New Winches for Stern Trawlers," by F. Utesch, article, Hansa, vol. 98, 1961, pp. 1995-1996, printed in German. C. Schroedter und Co., 10 Dyunnrnhuk, Hamburg 11, Germany.

TRAWLING:

"A Device for Sight-Guided Trawling within a Range of Different Depths," by V. P. Lavrov and others, article, Okeanologiia, vol. 3, no. 1, 1963, pp. 137-142, printed in Russian. Akademiia Nauk SSSR, Moscow, U.S.S.R.

TRAWL NET:

"Model Experiments on the Japanese Two-Boat Type Trawl Net," by T. Taniguchi, article, Journal of the Shimonoseki College of Fisheries, vol. 10, 1961, pp. 355-370, printed in Japanese. Shimonoseki College of Fisheries, Jamaguchi Prefecture, Yoshimi, Shimonoseki, Japan.

TUNA:

A Bibliography of Research of Tunas for the Years 1957-1960, by K. Kuennen, FB/T16, processed. Fisheries Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, 1961.

Biochemical Study on Tuna (Tuna Conference between U.S.A. and Japanese Governments), 7 pp., printed. Japanese Fisheries Agency, Tokyo, Japan, 1959.

"Contribuicao para o Estudo Dos Atuns do Arquipelago de Cabo Verde" (Study of Tunas in Archipelago of Cape Verde), by Fernando Correia Da Costa, Notas Mimeografadas do Centro de Biologia Piscatoria No. 27, 26 pp., processed in Portuguese. Centro de Biologia Piscatoria, Lisbon, Portugal, 1962.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

"Estudo do Mercado Americano de Conservas de Atum" (Study of American Market for Canned Tuna), article, Conservas de Peixe, vol. XVII, no. 202, January 1963, pp. 15-17, 34, printed in Portuguese. Sociedade da Revista Conservas de Peixe Lda., Requeirao dos Anjos, 68, Lisbon, Portugal.

"Frozen Albacore Tuna--The Influence of Storage Conditions Prior to Freezing," by N. Tomlinson, Shirley E. Geiger, and Eve Roberts, article, Progress Reports of the Pacific Coast Stations, No. 114, June 1962, pp. 19-21, printed. Fisheries Research Board of Canada, 6640 NW. Marine Dr., Vancouver 8, B. C., Canada.

"Identification of Larvae of Four Species of Tuna from the Indo-Pacific Region," by Walter M. Matsumoto, article, Biological Abstracts, vol. 39, no. 5, 1962, Abstract No. 21230, printed. University of Pennsylvania, 38-5 Walnut St., Philadelphia 4, Pa.

"Observation on the Behavior of Skipjack Tuna, Euthynnus pelamis, in Captivity," by Eugene L. Nakamura, article, Copeia, no. 3, September 28, 1962, pp. 499-505, illus., printed, single copy $2.50. American Society of Ichthyologists and Herpetologists, 18111 Nordhoff St., Northridge, Calif.

"Recent Changes in the Efficiency of Vessels Fishing for Yellowfin Tuna in Eastern Pacific Ocean," Gordon Clifford Broadhead, article, Inter-American Tropical Tuna Commission Bulletin, vol. 6, no. 7, 1962, pp. 281-332, illus., printed. Inter-American Tropical Tuna Commission, La Jolla, Calif.

Study on Green Flesh (Tuna Conference between U.S.A. and Japanese Government), 23 pp., printed. Japanese Fisheries Agency, Tokyo, Japan, 1959.

TURKEY:

Balik ve Balikcilik (Fish and Fishery), vol. 10, no. 11-12, March-April 1962, 35 pp., illus., printed in Turkish with English table of contents. Balikcilik Mudurlugu, Besiktas, Istanbul, Turkey. Includes, among others, the following articles: "How We Can Modernize Dolphin Processing Method;" "Quinquennial Development Plan and Fisheries;" "The Development of Fishery in our Freshwater Lakes and Dams;" "Cultivation of Natural Pearls with Artificial Methods;" and "Trawling."

TURTLES:

The Green Turtle and Man, by James J. Parsons, 126 pp., illus., printed, $8.50. University of Florida Press, Gainsville, Fla., 1963.

U.S.S.R.:

"L'Utilisation Optimum des Resources, Objectif Principal des Peches Sovietiques" (The Optimum Utilization of the Resources is the Principal Objective of the Soviet Fisheries), by Carlo Lozzi, article, France Peche, no. 70, February 1963, pp. 31-33, illus., printed in French. France Peche, Boite Postale 179, Lorient, France.

*Sbornik Izobretenii v Rybnoi Promyshlennosti SSSR za 1961 God (A Collection of 1961 Inventions Pertaining to the Fishing Industry), R 26005, printed in Russian. Vsesoiuznii Nauchno-Issledovatel'skii Institut Morskogo Rybnogo Khoziaistva i Okeanografii (VNIRO), Moscow, U.S.S.R., 1962.

VIRGINIA:

Treasures from the Sea: The Virginia Seafood Industry, by Robert S. Bailey, Educational Series No. 10, 22 pp., illus., printed. Virginia Fisheries Laboratory, Gloucester Point, Va., 1959.

WHALES:

The Scientific Reports of the Whales Research Institute, no. 16, March 1962, 126 pp., illus., printed. The Whales Research Institute, 12-4 Tsukishima-Nishigashi-dori, Chuo-ku, Tokyo, Japan. Includes, among others, these articles: "Ryukyuan Whaling in 1961," by M. Nishiwaki; "Food of Baleen Whales Collected in Recent Japanese Antarctic Whaling Expeditions," by T. Nemoto; and "Subarctic Oceanography in Relation to Whaling and Salmon Fisheries," by M. Uda.

WHALING:

"Australian Whaling Since War," by D. J. Gates, article, Fisheries Newsletter, vol. 22, no. 2, February 1963, pp. 21-23, 24, illus., printed. Commonwealth Fisheries Office, Department of Primary Industry, Canberra, Australia. A brief review of the Australian whaling industry since 1945. Discusses the whale populations which have supported the Australian industry, and their migratory routes. Also discusses the quantity and value of whale-oil production, management of the whale resources, and related subjects.

"Catch Reports--The Summer Season 1962," and "Catch Reports--Pelagic Catch in the Season 1962/1963," articles, Norsk Hvalfangst-Tidende (The Norwegian Whaling Gazette), vol. 52, no. 1, January 1963, pp. 19, 21-22, 24, printed in Norwegian and English. Hvalfangerforeningen, Sandefjord, Norway.

"Norway's Position with Regard to the International Whaling Convention," article, Norsk Hvalfangst-Tidende (The Norwegian Whaling Gazette), vol. 52, no. 2, February 1963, pp. 33-38, printed in Norwegian and English. Hvalfangerforeningen, Sandefjord, Norway. The full text of a report by the Norwegian Government to the Storting (Parliament) regarding Norway's position in relation to the International Whaling Convention of December 2, 1946. Discusses Norway's re-entrance into the Whaling Convention on June 14, 1961, and its subsequent withdrawal on December 31, 1961. It was then declared that Norway's notification of withdrawal would be revoked as soon as an agreement about division of the whaling quota was signed by the five whaling countries; by July 1, 1962 at latest, which was the date the withdrawal would otherwise have become effective. Norway took back its notification of withdrawal at the same time as the quota agreement and the supplementary agreement concerning a bonus arrangement for the Netherlands were signed in London on June 6, 1962. The Government has attached great weight to the question of an agreement on inspection of whaling operations in the Antarctic and negotiations towards such an agreement are now in progress.

"Whale Hunting Off Nova Scotia," by G.J. Gillespie, article, Trade News, vol. 15, no. 4, October 1962, pp. 8-9, 14, illus., processed. Information and Consumer Service, Department of Fisheries, Ottawa, Canada.

"Whaling Fleet Crews in the Antarctic, Season 1962/1963," article, Norsk Hvalfangst-Tidende (The Norwegian Whaling Gazette), vol. 52, no. 1, January 1963, pp. 3-7, printed in Norwegian and English. Hvalfangerforeningen, Sandefjord, Norway.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

"Whaling Vessels in Operation in Season 1962/1963," article, Norsk Hvalfangst-Tidende (The Norwegian Whaling Gazette), vol. 52, no. 1, January 1963, pp. 8-17, 19, printed in Norwegian and English. Hvalfangerforeningen, Sandefjord, Norway.

YEAR-BOOK:

Scandinavian Fishing Year-Book, 1962-63 (The European Fishing Handbook), edited by Jorgen Frimodt, 600 pp., illus., printed, $6. Columbia University Press, International Documents Service, 2960 Broadway, New York 27, N. Y., 1963. The fifth edition of this reference book for those who produce, market, and buy fish has recently been issued in an expanded form, especially with regard to statistics, lists of importers and exporters, and international coverage. While the greatest amount of detailed information relates to European countries, there also are lists of importers and exporters for Australia and for numerous countries in Africa, Asia, and North, South, and Central America. For example, the United States section has been expanded from 3 to 18 pages. Sections on Belgium, Denmark and the Faroe Islands, Finland, France, West Germany, Iceland, Netherlands, Norway, Sweden, and the United Kingdom contain catch statistics; a register of fishing vessels; lists of shipbuilders, gear manufacturers, and fish meal plants; and other information. Also included are international fisheries statistics compiled by the Food and Agriculture Organization; information on other European countries; and a herring atlas.

SHARKS GET THE NEEDLE

Two Australian skin divers have perfected a hypodermic needle which is recessed in a rod shot from a conventional spear gun. Upon impact, the needle is forced into the shark, injecting a lethal dose of strychnine nitrate. The weapon kills in less than thirty seconds. (Sea Frontiers, May 1963.)

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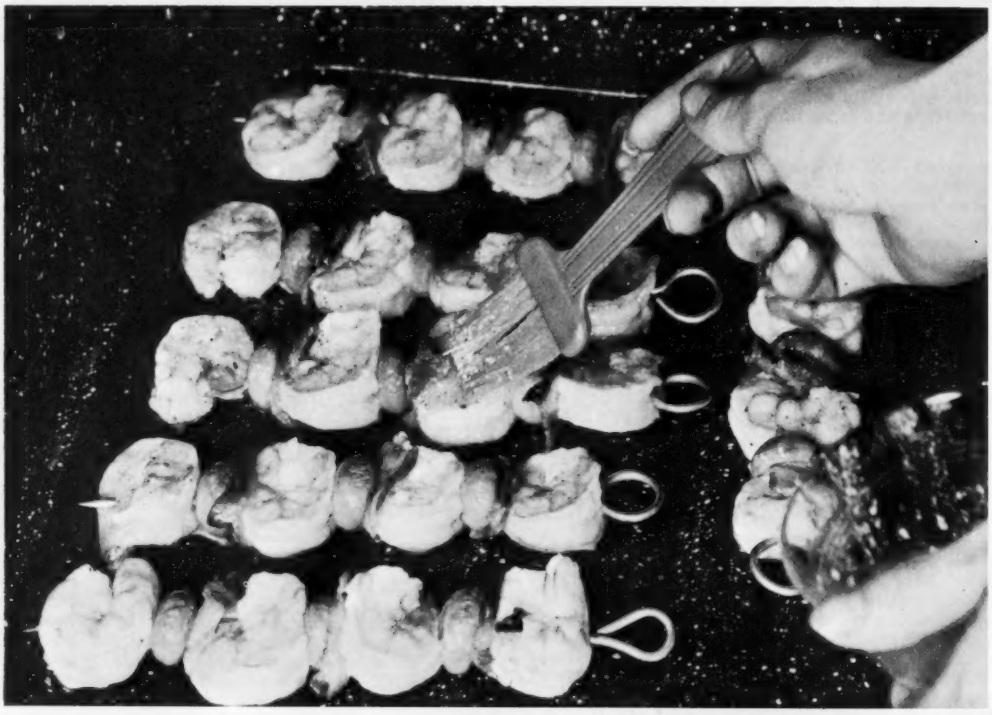
SEAFOOD BARBECUE

With summer here, it's cook-out time again. If you are planning a backyard barbecue, a picnic, or a beach party, here's an outdoor fish cookery tip from the home economists of the U. S. Bureau of Commercial Fisheries: "Barbecued Shrimp Kabobs."

To round out your outdoor seafood barbecue, wrap potatoes and your favorite vegetables separately in heavy-duty foil and cook them on the barbecue grill, right along with the fish or shellfish. The final touch--a cool, refreshing beverage.



BARBECUED SHRIMP KABOBS

- $\frac{3}{4}$ POUND COOKED SHRIMP, FRESH OR FROZEN
- 12 SLICES BACON
- 1 CAN ($13\frac{1}{2}$ OUNCES) PINEAPPLE CHUNKS, DRAINED
- 1 CAN (4 OUNCES) BUTTON MUSHROOMS, DRAINED
- $\frac{1}{4}$ CUP SOY SAUCE
- $\frac{1}{4}$ CUP SALAD OIL
- $\frac{1}{4}$ CUP LEMON JUICE
- $\frac{1}{4}$ CUP CHOPPED PARSLEY
- $\frac{1}{2}$ TEASPOON SALT
- DASH PEPPER

Thaw frozen cooked shrimp. Fry bacon slowly until cooked but not crisp. Cut each slice in half. Using long skewers, alternate shrimp, pineapple, mushrooms, and bacon until skewers are filled. Combine soy sauce, salad oil, lemon juice, parsley, salt, and pepper. Brush kabobs generously with sauce and place on preheated barbecue grill about 4 inches from moderately hot coals. Broil 3 minutes, turn and brush with sauce. Broil 3 minutes longer or until lightly browned. Serves 6.

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